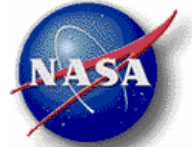




Alpha Magnetic Spectrometer
NASA / DOE

Alpha Magnetic Spectrometer Project Tag-up Minutes



National Aeronautics and
Space Administration

April 27, 2005
Building 1, Room 920L
2:00 – 4:00 pm

Attendees

CCB members and other attendees are listed in Attachment 1.

Agenda Item 1: USS Manufacturing Status

Agenda Item 2: Vacuum Case Status

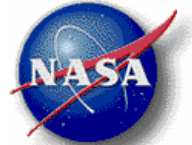
Agenda Item 3: Open Paper Management Tool – Open Items Report

- ❑ OPMT attached as Attachment 2 is the updated version reflecting all updates and statuses provided at CCB.
- ❑ No new actions were assigned but modifications were made to existing actions
 - Open Item 04-055: Review the composite panel strength testing results and requirements from the Structures Working Group with variability of data and relative paucity of data. Task assigned to Chris Tutt/ESCG.
 - Jay Bennett responded. Response was sent to Marco Molina/CGS. No response from CGS.
 - Action item was closed April 27, 2005.
 - Open Item 04-115: Investigate to see if we need a FEMA/CIL for AMS. If not, what are we doing in place of the FEMA/CIL? Task assigned to Paul Nemeth/ESCG and Mike Fohey/ESCG.
 - Action item should have been closed March 16, 2005.
 - Open Item 04-117: Extending Magnet Life - Make sure we have the capability to provide 150W of power into the cryo-coolers (-vs- the 100W nominal power). Task assigned to Craig Clark/ESCG and Joe Burger/AMS.
 - Action item should have been closed March 16, 2005.



Alpha Magnetic Spectrometer
NASA / DOE

Alpha Magnetic Spectrometer Project Tag-up Minutes



National Aeronautics and
Space Administration

April 27, 2005

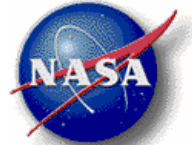
- Open Item 04-120: Work with all AMS experimenters to close out all open issues associated with the Phase II Flight Safety Review Safety Data Package. Task assigned to Leland Hill/ESCG.
 - New set of actions in work.
 - Some actions have been answered. Addressing specific organizations/individuals that have not responded.
 - Safety package should be ready by the end of June to distribute to the collaboration approximately two weeks before the July TIM. Responses from the collaboration will be due prior to or during the TIM. The safety package will be updated and redistributed to the collaboration after the TIM.
 - Trent Martin/EA2 requested to see a status of action items at each CCB/Tag-up meeting.
 - Per Trent Martin/EA2, hold firm to the May 31st due date for new list of action items.
- Open Item 05-004: Work on closure plans for all open Boeing PEI issues. Should also include Kornel Nagy or Hung Nguyen with structures. Steve Porter/EA wants to know who the ultimate arbitrator for structures. Task assigned to Chris Tutt/ESCG.
 - ESCG and Boeing PEI have reached an agreement. Agreement sent to ES2, but no response.
 - Chris Tutt/ESCG to send a copy of the emails to ES2 to Trent Martin/EA. Trent Martin/EA2 to speak with Steve Porter/EA1 about emails and ES2's lack of response and ask Steve Porter/EA1 to address issue with ES2 management.
- Open Item AMS_02-ACOP_PDR-03: Reconcile PIM schedules with OZ. Task assigned to Peter Dennett/AMS.
 - Action item due date was changed to May 8, 2005.
- Open Item AMS_02-ACOP_PDR-11-1: Provide to CGS and ASI all appropriate technical requirements (structural, thermal, environmental, safety, etc - may work best as soft stow item - note that none of these can be used as a return vehicle for the ACOP assembly) for ATV, HTV, Progress, and Soyuz. Task assigned to Chris Tutt/ESCG.



Alpha Magnetic Spectrometer
NASA / DOE

Alpha Magnetic Spectrometer Project Tag-up Minutes

April 27, 2005



National Aeronautics and
Space Administration

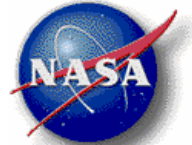
- Chris Tutt/ESCG has documents and working to synchronize documents. Pulling the requirements for each vehicle into one document.
- Trent Martin/EA2 asked who would be responsible for updating the requirements document Chris Tutt/ESCG is creating if requirements change. Win Reid stated that when a vehicle is chosen Boeing PEI will address.
 - Ensure that ACOP meets vehicle requirements. Re-verify requirements are met when vehicle decided.
- Peter Dennett/AMS requested copy of the table and each document.
- Chris Tutt/ESCG is hoping to have the requirements document completed by May 13, 2005.
- Open Item AMS_02-ACOP_PDR-19-1: Provide specification to CGS and ASI. Task assigned to Bruce Sommer/ESCG.
 - Action item should have been closed March 17, 2005.
- Open Item AMS_02-ACOP_PDR-40-1: Obtain Boeing document of APIDs. Task assigned to Peter Dennett/AMS.
 - Action item due date changed to June 1, 2005 as this is a CDR related item and document will be released for CDR.
- Open Item AMS_02-ACOP_PDR-40-2: Obtain Boeing document of APIDs. Task assigned to Joseph Breit/IPIC PSI.
 - Win Reid/OZ will talk to Joseph Breit/IPIC PSI to see if action item is being addressed.
- Open Item AMS_02-ACOP_PDR-48-1: Provide kick loads for standard connectors. Task assigned to Paul Nemeth/ESCG.
 - Action item should have been closed March 17, 2005.
- Open Item AMS_02-ACOP_PDR-50-1: Provide kick loads for standard connectors. Task assigned to Vergel Romero/Boeing PEI.
 - In work.



Alpha Magnetic Spectrometer
NASA / DOE

Alpha Magnetic Spectrometer Project Tag-up Minutes

April 27, 2005



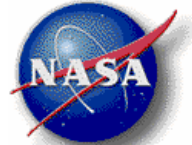
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- Vergel Romero/Boeing PEI gave a presentation to Mike Horkachuck/OZ3 in mid-March.
- Peter Dennett/AMS requested to be part of ACOP discussions.
- This issue will be discussed at the ACOP Flight Safety Review May 2 and 3.
- Paul Nemeth/ESCG requested that Mike Horkachuck/OZ3 be asked to attend the ACOP FSR.
- Open Item AMS_02-ACOP_PDR-56: Confirm that EMC Acceptance Testing for FMs be emissions only. Task assigned to Tim Urban/ESCG.
 - In work. Still no response from EV.
- Open Item AMS_02-ACOP_PDR-57-2: Provide all drawings necessary to develop ground hardware for necessary cables and connectors. Task assigned to Win Reid/OZ.
 - Standard cables and connectors has been approved.
 - Non-standard cables and connectors has not been approved.
 - Win Reid/OZ will give a status on Monday, May 2 at the ACOP FSR.
 - Action item should have been closed on March 30, 2005.
- Open Item AMS_02-CDR-01: Provide information in Phase II Safety Data Package and SVP will be updated. Task assigned to Chris Tutt/ESCG.
 - Chris Tutt need to discuss all pressure systems with Howard Flynn/EP4.
 - Action item due date was changed to May 31, 2005.
- Open Item AMS_02-CDR-12: Supply document listing EMI/electrical specs. Task assigned to Tim Urban/ESCG.
 - Henry Hoang/Boeing PEI has not been returning Tim Urban/ESCG calls.
 - Win Reid/OZ to get with Henry Hoang/Boeing PEI.



Alpha Magnetic Spectrometer
NASA / DOE

Alpha Magnetic Spectrometer Project Tag-up Minutes



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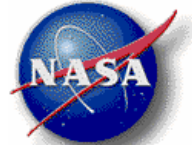
April 27, 2005

- Open Item AMS_02-CDR-13: Supply EME control plan. Task assigned to Tim Urban/ESCG.
 - An independent plan is not necessary.
 - Waiting for concurrence from Henry Hoang/Boeing PEI to close action.
- Open Item AMS_02-CDR-14: Supply wire list and derating details. Task assigned to Tim Urban/ESCG and Dewey Nguyen/ESCG.
 - Missing some parts. Tim Urban/ESCG will get with D. Beverly/EEE as soon as the list is complete.
 - Next status date is May 11, 2005 or next CCB/Tag-up meeting.
- Open Item AMS_02-CDR-15: Implement recommendation. Task assigned to Tim Urban/ESCG and Paul Nemeth/ESCG.
 - Drawing has been updated. Drawing was emailed and a hard copy delivered to Y. Jaurigue/USA. No response from United Space Alliance (USA).
 - Trent Martin/EA2 requested that if still no response from USA by May 22, 2005, Tim Urban/ESCG to send email to Trent Martin/EA (cc Win Reid/OZ) requesting action.
- Open Item AMS_02-CDR-16: Implement recommendation. Task assigned to Tim Urban/ESCG and Paul Nemeth/ESCG.
 - Drawing has been updated. Drawing was emailed and a hard copy delivered to Y. Jaurigue/USA. No response from United Space Alliance (USA).
 - Trent Martin/EA2 requested that if still no response from USA by May 22, 2005, Tim Urban/ESCG to send email to Trent Martin/EA (cc Win Reid/OZ) requesting action.
- Open Item AMS_02-CDR-17-1: Implement recommendation. Task assigned to Tim Urban/ESCG and Dewey Nguyen/ESCG.
 - Drawing has been updated. Drawing was emailed and a hard copy delivered to Y. Jaurigue/USA. No response from United Space Alliance (USA).



Alpha Magnetic Spectrometer
NASA / DOE

Alpha Magnetic Spectrometer Project Tag-up Minutes



National Aeronautics and
Space Administration

April 27, 2005

- Trent Martin/EA2 requested that if still no response from USA by May 22, 2005, Tim Urban/ESCG to send email to Trent Martin/EA (cc Win Reid/OZ) requesting action.
- Open Item AMS_02-CDR-21: Implement recommendation. Task assigned to Tim Urban/ESCG and Paul Nemeth/ESCG.
 - Drawing has been updated. Drawing was emailed and a hard copy delivered to Y. Jaurigue/USA. No response from United Space Alliance (USA).
 - Trent Martin/EA2 requested that if still no response from USA by May 22, 2005, Tim Urban/ESCG to send email to Trent Martin/EA (cc Win Reid/OZ) requesting action.
- Open Item AMS_02-CDR-23: Implement recommendation. Task assigned to Tim Urban/ESCG and Paul Nemeth/ESCG.
 - Drawing has been updated. Drawing was emailed and a hard copy delivered to Y. Jaurigue/USA. No response from United Space Alliance (USA).
 - Trent Martin/EA2 requested that if still no response from USA by May 22, 2005, Tim Urban/ESCG to send email to Trent Martin/EA (cc Win Reid/OZ) requesting action.
- Open Item AMS_02-Thermal_CDR-61: Make sure all MLI is accurately accounted for in TCS Mass budget. Task assigned to CGS.
 - TCS mass budget presented at the April TIM, but it was rejected.
 - Mike Capell/AMS requested that a new due date be assigned to CGS.
 - Craig Craig/ESCG to coordinate with CGS.
- Open Item AMS_02-Thermal_CDR-66: Identify the criticality of this interface, perhaps by performing a sensitivity study. If this is a critical interface then consider testing to verify actual value. Task assigned to CGS.
 - Craig Clark/ESCG to discuss this action with CGS.



Alpha Magnetic Spectrometer
NASA / DOE

Alpha Magnetic Spectrometer Project Tag-up Minutes

April 27, 2005



National Aeronautics and
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Trent Martin adjourned meeting at 3:15 pm.

Minutes Approval: _____

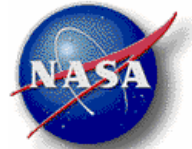
A handwritten signature in black ink, appearing to be "Trent Martin", is written over a horizontal line.



Alpha Magnetic Spectrometer
NASA / DOE

Alpha Magnetic Spectrometer Project Tag-up Minutes

April 27, 2005



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Space Administration

Attachment 1

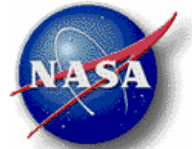
CCB Sign-in Sheet



Alpha Magnetic Spectrometer
NASA / DOE

Alpha Magnetic Spectrometer Project Tag-up Minutes

April 27, 2005



National Aeronautics and
Space Administration

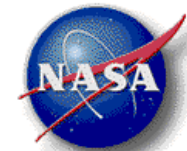
Attachment 2

Open Action Items Matrix



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Open Paper Management Tool *Open Items Report*



National Aeronautics and
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Open Action Items Report

Open Item Number 04-046

RID Open Date: 8/1/2004

RID Closure Date:

Title:

Affected Document:

Initiator(s):

Initiator(s) Phone Number:

Description:

RID Disposition:

RID Status:

Action Item Information

Action Assigned?: Yes

Actionee(s): Bill Hungerford/AMS
Trent Martin/EA

Phone Number(s):
281-483-3296

Action Due Date: 7/31/2005

Action Completion Date:

Action: Build an integrated logic flow, assembly, and test (LFAT Schedule?) schedule and for the payload at CERN. Include a clear plan for Quality Control and MRB Authority for the payload integration and assembly at CERN. Ensure that an iterative electrical / functional test scheme is included to ensure adequate operation of hardware / software before access to that "installed" crate or detector is no longer possible.

Action Status: 02/09/05 - We will build an integrated plan at JSC to go through with the AMS Collaboration. The plan will have to be approved by the AMS Collaboration. The plan is to have: (1) NASA representative at CERN for the integration process and (2) NASA provide a quality representative to be at CERN at all time for quality control during integration process

01/19/05 - briefed by G. Laureti/AMS at KSC TIM; facility at Geneva looking for alternative; STA magnet test here at JSC or IBG, Aachen (proposed by K. Lubelsmeyer/AMS), or ETH Zurich; Looking into options as backup to CERN (Aguilar/AMS working the issue); T. Martin/EA wants G. Laureti's schedule to be in scheduling format.

12/10/04 - Discuss issue at KSC TIM in January 2005; splinter meeting of detectors

11/17/04 - To be discussed at the Integration meeting being held at CERN December 7-9, 2004

08/01/04 - Plan due by 09/18/04; Questionnaire sent to detector groups to initiate process. Meeting scheduled at CERN Sept 13 and 14, chaired by Giuliano Laureti, to consolidate and refine inputs from various detector and sub-system groups. Should result in development of preliminary LFAT Schedule for review at October TIM

Open Action Items Report

Open Item Number 04-051

RID Open Date: 8/1/2004

RID Closure Date:

Title:

Affected Document:

Initiator(s):

Initiator(s) Phone Number:

Description:

RID Disposition:

RID Status:

Action Item Information

Action Assigned?: Yes

Actionee(s): OZ/Bob Miley

Phone Number(s):

Action Due Date: 6/30/2005

Action Completion Date:

Action: Finalize SSRMS requirements around the AMS-02

Action Status: 04/27/05 - Per request from Mike Capell/AMS the TBDs from the PIA have been listed below.

03/02/05 - It will be three weeks before it is known the amount of power to be provided. It will not be 3Kw. Win Reid/OZ to set up meeting with Chris Tutt/ESCG, Trent Martin/EA2, Craig Clark/ESCG, John Cornwell/EC, and Henry.

Due date for this action item was changed to June 30, 2005.

02/09/05 - ISS ICD – turning in PIA baselined first. Still other actions to be handled (3 Kw of power the station guaranteed and duration of time for fiber optic). Plan to remove the TBRs. Win Reid to check on the actions on the ISS side. Action item to be discussed at next week's tag-up meeting on February 16, 2005.

12/10/04 - ISS ICD to be released 02/05; question how to get into official documentation; New status to be provided in January

11/17/04 - Add PIRN/Waiver

09/29/04 - To be discusses at the CCB on 10/27/04

08/11/04 - Needs hazard report

08/01/04 - Plan due by 09/18/04

Open Action Items Report

Open Item Number 04-056

RID Open Date: 8/1/2004

RID Closure Date:

Title:

Affected Document:

Initiator(s):

Initiator(s) Phone Number:

Description:

RID Disposition:

RID Status:

Action Item Information

Action Assigned?: Yes

Actionee(s): Chris Tutt/ESCG
Bill Hungerford/AMS
Paul Nemeth/ESCG

Phone Number(s): 281-461-5703

281-461-5715

Action Due Date: 8/15/2005

Action Completion Date:

Action: Provide the plan for Surveillance of Safety Critical assembly and test steps of Collaboration Hardware.

Action Status: 02/09/05 - Mike Fohey/ESCG and David Kaplan/NT to discuss the MVP schedule. The MVP is a deliverable on the ESCG contract and is to be delivered no later than 8 months from February 1, 2005.

Open Action Items Report

Open Item Number 04-069

RID Open Date: 8/4/2004

RID Closure Date:

Title:

Affected Document:

Initiator(s):

Initiator(s) Phone Number:

Description:

RID Disposition:

RID Status:

Action Item Information

Action Assigned?: Yes

Actionee(s): Leland Hill/ESCG
Chris Tutt/ESCG

Phone Number(s): 281-461-5701
281-461-5703

Action Due Date: 5/1/2005

Action Completion Date:

Action: Coordinate closeout photo tasks; Need to verify we get closeout photos before hardware is closed up; Need update the pre-flight imagery plan

Action Status: 10/05/04- final documentation must be done after Surveillance Plan for Safety Critical Structure

09/29/04 - Draft documentation is complete

Open Action Items Report

Open Item Number 04-120

RID Open Date: 12/6/2004

RID Closure Date:

Title:

Affected Document:

Initiator(s):

Initiator(s) Phone Number:

Description:

RID Disposition:

RID Status:

Action Item Information

Action Assigned?: Yes

Actionee(s): Leland Hill/ESCG

Phone Number(s): 281-461-5701

Action Due Date: 3/31/2005

Action Completion Date:

Action: Work with all AMS experimenters to close out all open issues associated with the Phase II Flight Safety Review Safety Data Package.

Action Status: 03/02/05 - Not many issues left open. In work.

01/19/05 - Some data has been received since the October TIM and January TIM; Some data not due until March 2005; Due date was changed from 01/31/05 to 03/31/05; Final Safety Data Package due 03/08/05.

Open Action Items Report

Open Item Number 05-004

RID Open Date: 2/9/2005

RID Closure Date:

Title:

Affected Document:

Initiator(s):

Initiator(s) Phone Number:

Description:

RID Disposition:

RID Status:

Action Item Information

Action Assigned?: Yes

Actionee(s): Chris Tutt/ESCG
Vic Sanders/Boeing

Phone Number(s): 281-461-5703

Action Due Date: 2/23/2005

Action Completion Date:

Action: Work on closure plans for all open Boeing PEI issues. Should also include Kornel Nagy or Hung Nguyen with structures. Steve Porter/EA wants to know who the ultimate arbitrator for structures.

Action Status: 04/27/05 - ESCG and Boeing PEI have reached an agreement. Agreement sent to ES2, but no response. Chris Tutt/ESCG to send a copy of the emails to ES2 to Trent Martin/EA. trent Martin/EA2 to speak with Steve Porter/EA1 about emails and ES2's lack of response and ask Steve Porter/EA1 to address issue with ES2 management.

03/16/05 - Boeing agreed to plan of action for on-orbit. Trying to submit model, but Boeing will not confirm what type of model they need. Need written approval from Boeing and verbal approval from NASA.

03/02/05 - Boeing is satisfied. Have a plan but it is not officially signed off. Working through Mike Grygier/ES2. Since there has been no response from Kornel Nagy, send an email Hung Nguyen to push Kornel Nagy's response.

Open Action Items Report

Open Item Number 05-006

RID Open Date: 3/2/2005

RID Closure Date:

Title:

Affected Document:

Initiator(s):

Initiator(s) Phone Number:

Description:

RID Disposition:

RID Status:

Action Item Information

Action Assigned?: Yes

Actionee(s): Paul Nemeth/ESCG

Phone Number(s): 281-461-5715

Action Due Date: 5/31/2005

Action Completion Date:

Action: Hire a scheduler.

Action Status: 03/16/05 - JS employee that had originally been identified was unwilling to relocate to Houston. Requisition for the open position was input to JS system on 3/14/05. Resume of one "qualified" candidate from MSFC has already been received. Working to set up interview.

Open Action Items Report

Open Action Items Report

Open Item Number AMS_02-ACOP_PDR-01

RID Open Date: 3/9/2005

RID Closure Date:

Title: Transfer Rate Ambiguities

Affected Document: ACP-RP-CGS-002

Initiator(s): Mike Capell/AMS

Initiator(s) Phone Number: +41 22 767 4706

Description: *Description of Problem:*

There is a lack of consistency and lack of clarity in the data rate requirements for AMS and ACOP. ACOP documents are mostly correct in showing 4Mbit/s as a requirement but this has been interpreted to mean that the AMS-02 data rate has been increased.

Recommendation:

- 1. Implement a clear explanation of the data rates for ACOP and AMS-02, including expected average data rates and supported peak data rates.*
- 2. Provide a simple diagram showing the AMS data source, internal buffer s (JBU) , ACOP and downlink with these data rates.*

Suggested text:

The AMS-02 experiment has been designed to meet its physics goals when producing data at an average rate of 2MBit/s. Data is produced continuously. However, the physics that will be measured is unknown, and so are the peak and average data rates -- 2Mbit/s average is the best estimate. Within AMS-02 a four-fold redundant 1GByte buffer (JBU) is provide to smooth the data flow and to allow for short term (less than an hour) interruptions in the data output from AMS, for example when the hard disk drives are being swapped within ACOP. After any such interruption, the data rate capability in ACOP must be able to make up for the lost time while not falling behind on the fresh data. Therefore ACOP should be able to process data at a rate of at least twice the average data rate from AMS, namely 4Mbit/s.

Impact if recommendation not implemented:

ACOP may meet its stated data rate cababilities but fail to properly support AMS.

Proposed Resolution:

Clarify documentation

RID Disposition: Approved with Modification

RID Status: Closure Pending Documentation

Action Item Information

Action Assigned?: Yes

Actionee(s): CGS

Phone Number(s):

Action Due Date: 6/1/2005

Action Completion Date:

Open Action Items Report

Action:

Action Status:

Open Action Items Report

Open Item Number AMS_02-ACOP_PDR-02

RID Open Date: 3/9/2005

RID Closure Date:

Title: Incorrect Base Document for Payload Integration Agreement

Affected Document: ACP-IC-CGS-001

Initiator(s): Mike Capell/AMS

Initiator(s) Phone Number: +41 22 767 4706

Description: Description of Problem:

This document was based from SSP-52000-EIA-ERP Issue A. The ISS program now requires this document be based on SSP57066.

Recommendation:

1. Recreate this document from the correct base.
2. Provide the broadest range of transportation options (STS Middeck, MPLM, ATV, Progress, Skyhook).
3. Show relationship to JSC-57113 (AMS-02 PIA) which levies ACOP requirements as well.

Impact if recommendation not implemented:

ACOP may not meet its internal requirements but not be allowed to fly.

Proposed Resolution:

Update documentation to match with current NASA requirements.

RID Disposition: Approved

RID Status: Closure Pending Documentation

Action Item Information

Action Assigned?: Yes

Actionee(s): CGS

Phone Number(s):

Action Due Date: 6/1/2005

Action Completion Date:

Action: Update documentation

Action Status:

Open Action Items Report

Open Item Number AMS_02-ACOP_PDR-03

RID Open Date: 3/9/2005

RID Closure Date:

Title: Project Schedule Relationship to SSP 57057 and PIM Schedule

Affected Document: ACP-PL-CGS-003

Initiator(s): Mike Capell/AMS

Initiator(s) Phone Number: +41 22 767 4706

Description: Description of Problem:

It is difficult to understand the relationship to between the ACOP project schedule and SSP 57057 (and associated PIM schedule). It is not clear that the project schedule and the PIM schedule reconcile.

Recommendation:

1. Use SSP57057 nomenclature for the project schedule.
2. Reconcile milestones between the ACOP project schedule and the PIM schedule.

Impact if recommendation not implemented:

Project could misunderstand schedule requirements and work to the wrong schedule.

Proposed Resolution:

Reconcile schedules

RID Disposition: Approved

RID Status: Closure Pending Documentation

Action Item Information

Action Assigned?: Yes

Actionee(s): Peter Dennett

Phone Number(s):

Action Due Date: 5/8/2005

Action Completion Date:

Action: Reconcile schedules with OZ.

Action Status: 04/27/05 - Action item due date was changed to May 8, 2005.

Open Action Items Report

Open Item Number AMS_02-ACOP_PDR-04

RID Open Date: 3/9/2005

RID Closure Date:

Title: Front Panel LCD Display

Affected Document: ACP-SY-CGS-001

Initiator(s): Mike Capell/AMS

Initiator(s) Phone Number: +41 22 767 4706

Description: *Description of Problem:*

AMS-02 has a mission success motivated requirement that the crew be able to rapidly respond to AMS-02 off-nominal issues. The design detailed in this specification does not fulfil this requirement. In particular the design does not have the self-sufficient means to display ad-hoc information.

Recommendation:

1. The AMS-02 top level functional requirements (see "ACOP Design Report" ACP-RP-CGS-003 Issue 1 Section 4.1 Page 16) should be mentioned in Section 4.2, page 17 of this document.
2. Any discrepancies from the AMS-02 top level functional requirements should be formally noted in ACP-SY-CGS-001.
3. ACP-SY-CGS-001 should specify an LCD. The LCD should be not less the 320x240 dots with 8 bits of color. The LCD should be not less then 4 inches diagonal.

Impact if recommendation not implemented:

Failure to meet top level requirements and inability to track this failure.

Proposed Resolution:

Incorporate LCD into specification and implement

RID Disposition: Approved

RID Status: Open

Action Item Information

Action Assigned?: Yes

Actionee(s): CGS

Phone Number(s):

Action Due Date: 6/1/2005

Action Completion Date:

Action: Implement LCD

Action Status:

Open Action Items Report

Open Item Number AMS_02-ACOP_PDR-05-2

RID Open Date: 3/9/2005

RID Closure Date:

Title: Clarify Software Responsibilities Between CGS, ASI, and AMS-02

Affected Document: ACP-SY-CGS-001

Initiator(s): Mike Capell/AMS

Initiator(s) Phone Number: +41 22 767 4706

Description: Description of Problem:

There needs to be clarification on software responsibilities based on the delivery of application software from ASI to CGS and low level software from CGS (see ACP-PL-CGS-003 Section 2.2, Page 5).

Recommendation:

1. The ultimate source of application software should be identified as the AMS-02 Collaboration (also in ACP-PL-CGS-003).
2. ACP-SQ-CGS-001 should have requirements segregated between application (AMS-02 developed /“ASI” delivered) and low level (CGS developed).
3. The cooperation in software development should be directly addressed in the ACP-PL-CGS-003 Section 7.2 Interfaces Management, Page 14. It would be difficult for ASI to directly participate in this loop.

Impact if recommendation not implemented:

Failure to provide and verify software that meets requirements.

Proposed Resolution:

The aim of this document is to specify the requirements for basic software and interfaces between application SW and basic SW. CGS will specify the proposal for requirements to be applied to the contract related to the development of the Application SW. This will include at least the document ACP-SQ-CGS-001, delivered in the PDR data package.

RID Disposition: Approved with Modification

RID Status: Open

Action Item Information

Action Assigned?: Yes

Actionee(s): ASI

Phone Number(s):

Action Due Date: 6/1/2005

Action Completion Date:

Action: Implement approach

Action Status:

Open Action Items Report

Open Action Items Report

Open Item Number AMS_02-ACOP_PDR-06

RID Open Date: 3/9/2005

RID Closure Date:

Title: List of Spare Parts No Longer Matches the ACOP Design

Affected Document: ACP-SY-CGS-001

Initiator(s): Mike Capell/AMS

Initiator(s) Phone Number: +41 22 767 4706

Description: Description of Problem:

The list of spare parts no longer matches the ACOP design.

Recommendation:

The spare parts list should be modified as follows:

- (2) Hard Disks
- (1) ACOP-SBC
- (1) ACOP-T101
- (1) ACOP-T102
- (1) ACOP-T103
- (1) ACOP-PS
- (1) ACOP Power cable
- (1) ACOP Data cable
- (1) Fan with mounting kit
- (1) Exchangable Filter, if filters are implemented.

In general it should be noted that the exact spares to be provided will need to be adjusted if the design evolves.

Impact if recommendation not implemented:

Failure to provide useful spares.

Proposed Resolution:

Update spares list

RID Disposition: Approved

RID Status: Closure Pending Documentation

Action Item Information

Action Assigned?: Yes

Actionee(s): CGS

Phone Number(s):

Action Due Date: 6/1/2005

Action Completion Date:

Action: Update spare parts list.

Open Action Items Report

Action Status:

Open Action Items Report

Open Item Number AMS_02-ACOP_PDR-07-1

RID Open Date: 3/9/2005

RID Closure Date:

Title: ACOP Hard Drive Sparing

Affected Document: ACP-RP-CGS-003/Section 4.2

Initiator(s): Winston Reid/United Space Alliance

Initiator(s) Phone Number: 281-226-4809

Description: Description of Problem:

The required hard drive sparing is incorrect. Paragraph 4.2 states that a set of 4 hard drives will provide 20 days of recording capability and that 20 spare drives will provide 150 days of recording capability. Dividing the 150 day goal by 20 days tells you that ACOP needs 7.5 sets of hard drives to satisfy the 150 day requirement. Since there are 4 hard drives in each set, a total of 30 spare hard drives (4x7.5) are needed to be meet the 150 day sparing goal. But since ACOP drives are swapped 4 at a time, the number of spare or stowed hard drives must be increased to 32.

Recommendation:

Properly document the number of hard drives required as logistics spares.

Impact if recommendation not implemented:

1) AMS-02 risks running out of hard drives to record data.

2) Logistics sparing directly translates into upmass/downmass and on-orbit stowage requirements that require significant lead time for planning purposes. Due to competing requirements on these constrained resources, late changes are not always accommodated.

Proposed Resolution:

Update documentation to 120 day minimum goal & add traffic model

RID Disposition: Approved

RID Status: Closure Pending Documentation

Action Item Information

Action Assigned?: Yes

Actionee(s): Peter Dennett

Phone Number(s):

Action Due Date: 6/1/2005

Action Completion Date:

Action: Develop traffic model.

Action Status:

Open Action Items Report

Open Item Number AMS_02-ACOP_PDR-07-2

RID Open Date: 3/9/2005

RID Closure Date:

Title: ACOP Hard Drive Sparing

Affected Document: ACP-RP-CGS-003/Section 4.2

Initiator(s): Winston Reid/United Space Alliance

Initiator(s) Phone Number: 281-226-4809

Description: Description of Problem:

The required hard drive sparing is incorrect. Paragraph 4.2 states that a set of 4 hard drives will provide 20 days of recording capability and that 20 spare drives will provide 150 days of recording capability. Dividing the 150 day goal by 20 days tells you that ACOP needs 7.5 sets of hard drives to satisfy the 150 day requirement. Since there are 4 hard drives in each set, a total of 30 spare hard drives (4x7.5) are needed to be meet the 150 day sparing goal. But since ACOP drives are swapped 4 at a time, the number of spare or stowed hard drives must be increased to 32.

Recommendation:

Properly document the number of hard drives required as logistics spares.

Impact if recommendation not implemented:

1) AMS-02 risks running out of hard drives to record data.

2) Logistics sparing directly translates into upmass/downmass and on-orbit stowage requirements that require significant lead time for planning purposes. Due to competing requirements on these constrained resources, late changes are not always accommodated.

Proposed Resolution:

Update documentation to 120 day minimum goal & add traffic model

RID Disposition: Approved

RID Status: Closure Pending Documentation

Action Item Information

Action Assigned?: Yes

Actionee(s): Peter Dennett

Phone Number(s):

Action Due Date: 6/1/2005

Action Completion Date:

Action: Update documentation.

Action Status:

Open Action Items Report

Open Item Number AMS_02-ACOP_PDR-11-1

RID Open Date: 3/9/2005

RID Closure Date:

Title: ACOP Transport Vehicle Prematurely Identified

Affected Document: ACP-RP-CGS-003/Section 6.1.1

Initiator(s): Winston Reid/United Space Alliance

Initiator(s) Phone Number: 281-226-4809

Description: Description of Problem:

The second sentence implies that ACOP would only be transported to orbit via Shuttle.

Recommendation:

Change "ACOP will be transported inside the Shuttle in power off condition" to "ACOP will be transported to orbit in a power off condition."

Impact if recommendation not implemented:

The statement would remain incorrect. ACOP will be transported to orbit in an unpowered condition, however, the transport vehicle may be non-Shuttle.

Proposed Resolution:

Update document to include all possible vehicles.

RID Disposition: Approved

RID Status: Open

Action Item Information

Action Assigned?: Yes

Actionee(s): APO-Chris Tutt

Phone Number(s): 281-461-5703

Action Due Date: 3/31/2005

Action Completion Date:

Action: Provide to CGS and ASI all appropriate technical requirements (structural, thermal, environmental, safety, etc - may work best as soft stow item - note that none of these can be used as a return vehicle for the ACOP assembly) for ATV, HTV, Progress, and Soyuz.

Action Status: 04/27/05 - Chris Tutt/ESCG has documents and working to synchronize documents. Pulling the requirements for each vehicle into one document. Trent Martin/EA2 asked who would be responsible for updating the requirements document Chris Tutt/ESCG is creating if requirements change. Win Reid stated that when a vehicle is chosen Boeing PEI will address. Ensure that ACOP meets vehicle requirements. Re-verify requirements are met when vehicle decided. Peter Dennett/AMS requested copy of the table and each document. Chris Tutt/ESCG is hoping to have the requirements document completed by May 13, 2005.

Open Action Items Report

Open Item Number AMS_02-ACOP_PDR-11-2

RID Open Date: 3/9/2005

RID Closure Date:

Title: ACOP Transport Vehicle Prematurely Identified

Affected Document: ACP-RP-CGS-003/Section 6.1.1

Initiator(s): Winston Reid/United Space Alliance

Initiator(s) Phone Number: 281-226-4809

Description: Description of Problem:

The second sentence implies that ACOP would only be transported to orbit via Shuttle.

Recommendation:

Change "ACOP will be transported inside the Shuttle in power off condition" to "ACOP will be transported to orbit in a power off condition."

Impact if recommendation not implemented:

The statement would remain incorrect. ACOP will be transported to orbit in an unpowered condition, however, the transport vehicle may be non-Shuttle.

Proposed Resolution:

Update document to include all possible vehicles.

RID Disposition: Approved

RID Status: Open

Action Item Information

Action Assigned?: Yes

Actionee(s): CGS

Phone Number(s):

Action Due Date: 6/1/2005

Action Completion Date:

Action: Update documentation.

Action Status:

Open Action Items Report

Open Item Number AMS_02-ACOP_PDR-14

RID Open Date: 3/9/2005

RID Closure Date:

Title: ACOP Hard Drive Replacement Clarification

Affected Document: ACP-RP-CGS-003/Section 10.1.2

Intiator(s): Winston Reid/United Space Alliance

Initiator(s) Phone Number: 281-226-4809

Description: Description of Problem:

Sentence did not translate properly from Italian to English.

Recommendation:

Change sentence from: "The crew should plug out and in the 4 Hard Drives every about 20 days" to "The crew should remove 4 full hard drives and replace them with 4 empty hard drives from the logistics spares approximately every 20 days."

Impact if recommendation not implemented:

Requirement would remain unclear in this document.

Proposed Resolution:

Document will be updated

RID Disposition: Approved

RID Status: Closure Pending Documentation

Action Item Information

Action Assigned?: Yes

Actionee(s): CGS

Phone Number(s):

Action Due Date: 6/1/2005

Action Completion Date:

Action: Update documentation.

Action Status:

Open Action Items Report

Open Item Number AMS_02-ACOP_PDR-16

RID Open Date: 3/9/2005

RID Closure Date:

Title: EXPRESS IDD Page Reference

Affected Document: ACP-RP-CGS-003/Section 10

Initiator(s): Winston Reid/United Space Alliance

Initiator(s) Phone Number: 281-226-4809

Description: Description of Problem:

Many paragraphs within Section 10 contain a reference to a specific requirements page within the EXPRESS IDD. This is not a good idea because the information being referenced may move between document revisions.

Recommendation:

Instead of referencing a page, make the reference to the specific IDD paragraph number and book revision level. For example, USE: ``SSP52000-IDD-ERP, Rev E, Figure 3-8A`` instead of: ``SSP52000-IDD-ERP P3-18``.

Impact if recommendation not implemented:

Payload risks referencing wrong requirements paragraphs.

Proposed Resolution:

Document will be updated

RID Disposition: Approved

RID Status: Closure Pending Documentation

Action Item Information

Action Assigned?: Yes

Actionee(s): CGS

Phone Number(s):

Action Due Date: 6/1/2005

Action Completion Date:

Action: Update documentation.

Action Status:

Open Action Items Report

Open Item Number AMS_02-ACOP_PDR-19-2

RID Open Date: 3/9/2005

RID Closure Date:

Title: ACOP Bolt Analysis Requirements

Affected Document: ACP-RP-CGS-005

Initiator(s): Bruce Sommer/ESCG

Initiator(s) Phone Number: 281-461-5700

Description: Description of Problem:

Bolt analysis in report does not follow NASA 's guidelines for bolt analysis as specified in NSTS 08307 "Space Shuttle Criteria for Preloaded Bolts".

Recommendation:

Revise ACOP bolt analysis to meet the requirements specified in NSTS 08307.

RID Disposition: Approved

RID Status: Open

Action Item Information

Action Assigned?: Yes

Actionee(s): CGS

Phone Number(s):

Action Due Date: 6/1/2005

Action Completion Date:

Action: Update bolt analysis

Action Status:

Open Action Items Report

Open Action Items Report

Open Item Number AMS_02-ACOP_PDR-23

RID Open Date: 3/9/2005

RID Closure Date:

Title: Command APIDs

Affected Document: ACP-SP-CGS-001/Section 6.3.2

Initiator(s): Richard Weaver/Teledyne Brown Engineering

Initiator(s) Phone Number: 256-961-2004

Description: Description of Problem:

- ACP-SQ-CGS-001 Paragraph 1.1 and 1.2 describe an EXPRESS Payload Application running on the EXPRESS Laptop Computer (ELC). There is no mention of a ACOP Payload application for a Portable Computer System (PCS) (i.e. computer deployed on the PL MDM 1553 bus or the C&C 1553 bus).
- Section 6.3.2 in the ACOP Interface Specification ICD list APIDs for PCS to LAP@ & LAP4 ISPRs. These APIDs are not needed.
- Section 6.3.2 in the ACOP Interface Specification ICD list APIDs for MCC-H to LAP@ & LAP4 ISPRs. These APIDs are not needed because commands to US Payload ISPRs utilize POIC APIDs.
- In general, ACOP has not been assigned to a ISPR location, therefore APID definition is premature at this stage

Recommendation:

Delete APID table until manifested ISPR location can be determined. PEI will assign.

Impact if recommendation not implemented:

Incorrect command APID information resulting in loss of ground command capability.

Proposed Resolution:

We will implement the recommendation.

RID Disposition: Approved

RID Status: Closure Pending Documentation

Action Item Information

Action Assigned?: Yes

Actionee(s): CGS
Peter Dennett

Phone Number(s):

Action Due Date: 6/1/2005

Action Completion Date:

Action: Update documents.

Action Status:

Open Action Items Report

Open Item Number AMS_02-ACOP_PDR-24

RID Open Date: 3/9/2005

RID Closure Date:

Title: Acoustic Verification Requirement and Testing Clarification

Affected Document: ACP-PL-CGS-004/Section 4.3 and 6

Initiator(s): Eric Phillips/Boeing PEI

Initiator(s) Phone Number: 281-226-6367

Description: Description of Problem:

“Acoustic noise measurement will be performed on the FM only if QM results are marginal”. SSP 57000 requirements (Paragraph 4.3.12.3.3.1) states that acoustic measurements shall be made using actual flight equipment even though prototype or qualification units have been tested previously. This is due to the fact that hardware, such as cooling fans, can have varying noise signatures even though part numbers are identical.

Recommendation:

Perform acoustic testing on Flight Model per requirement SSP 57000 paragraph 4.3.12.3.3.1 unless a repeatable test on qualification unit shows consistency that payload is an insignificant noise source.

Impact if recommendation not implemented:

If qualification model is close to or at the requirement level and the flight model is not tested, there is a risk that the Flight Model will exceed the individual payload requirement due to variations in noise of the sub components (i.e. fans).

Team Member's Proposed Resolution:

SSP-52000-IDD-ERP Table 4-IX is the sub-rack level specification. Testing will be done on the QM. Testing should be done on all flight models unless the noise source is an insignificant noise. SSP-57000 describes an insignificant noise source as 37 dBA at 2 feet away in all directions.

RID Disposition: Approved with Modification

RID Status: Closure Pending Documentation

Action Item Information

Action Assigned?: Yes

Actionee(s): CGS

Phone Number(s):

Action Due Date: 6/1/2005

Action Completion Date:

Action: Update documentation to match this approach.

Action Status:

Open Action Items Report

Open Item Number AMS_02-ACOP_PDR-26

RID Open Date: 3/9/2005

RID Closure Date:

Title: Incorrect Version of SSP 50184

Affected Document: ACP-SP-CGS-001 (2.1) / ACP-PL-C

Initiator(s): Vergel Romero/Boeing PEI

Initiator(s) Phone Number: 281-226-4498

Description: Description of Problem:

Applicable Documents Item 9 is referering to Feb 1996 version of SSP 50184.

Recommendation:

Change to SSP 50184 Revision B Dated May 25, 2001

Impact if recommendation not implemented:

ACOP will be using an outdated version of the document which was changed considerably.

Proposed Resolution:

Will update document.

RID Disposition: Approved

RID Status: Closure Pending Documentation

Action Item Information

Action Assigned?: Yes

Actionee(s): CGS

Phone Number(s):

Action Due Date: 6/1/2005

Action Completion Date:

Action: Update documentation.

Action Status:

Open Action Items Report

Open Item Number AMS_02-ACOP_PDR-28

RID Open Date: 3/9/2005

RID Closure Date:

Title: Unknown J7 UIP Location

Affected Document: Multiple Documents

Initiator(s): Vergel Romero/Boeing PEI

Initiator(s) Phone Number: 281-226-4498

Description: Documents and Sections Affected:

ACP-SP-CGS-001 (6.1.3 fourth bullet) / ACP-RP-CGS-003 (5.4.2 fourth bullet) / ACP-RP-CGS-004 (5.4.2 fourth bullet)

Description of Problem:

These sections contain the following statement: ``TX and RX under TESS (complete mission) and TX under MELFI (as initiation location, may have to move).`` The actual locations of J7 connectors that will be provided to ACOP for use are still unknown.

Recommendation:

Indicate in the statement that since topology is not finalized, actual locations of J7 connectors are unknown and the length of fiber optic cable may vary.

Impact if recommendation not implemented:

If the fiber optic cable is designed before J7 Locations are known, cable may be too short.

Proposed Resolution:

The TESS location was provided to us by the ISS during the initial assessment several years ago. The second site was not finalized. We will remove references to specific J7 connections. However, the documentation will state that we need 2 J7 connectors.

RID Disposition: Approved

RID Status: Closure Pending Documentation

Action Item Information

Action Assigned?: Yes

Actionee(s): CGS

Peter Dennett

Phone Number(s):

Action Due Date: 6/1/2005

Action Completion Date:

Action: Update documentation.

Action Status:

Open Action Items Report

Open Item Number AMS_02-ACOP_PDR-29

RID Open Date: 3/9/2005

RID Closure Date:

Title: ACOP Compatibility with EXPRESS Rack Interface

Affected Document: ACP-SP-CGS-001/Section 2.1 and 5

Initiator(s): Henry Hoang/Boeing PEI

Initiator(s) Phone Number: 281-226-6054

Description: Description of Problem:

2.1 Applicable Documents

Comments: SSP 30238 and 30237 need to be included in the "Applicable Documents".

Consequences: ACOP will not compatible with EXPRESS Rack interface and Space Station.

5.3.1.1 Power Interface

1. Comments: Electromagnetic Interference (EMI) and Electrostatic Discharge (ESD) are not addressed in section 5.3.1 "Electrical Interfaces" of this document.

Suggestion: Add section 7.0 of SSP 52000-IDD-ERP to paragraph 5.3.1.1 of this document.

Consequences: ACOP will not compatible with EXPRESS Rack interface.

2. Provide 28Vdc Interface Block Diagram between the ACOP and EXPRESS including the cable and connector part numbers.

Proposed Resolution:

SSP 30238 and 30237 are called out by SSP 52000-IDD-ERP, so they do not have to be specifically called out by the ACOP team Section 5.3.1.1 will be updated as recommended.

RID Disposition: Approved with Modification

RID Status: Closure Pending Documentation

Action Item Information

Action Assigned?: Yes

Actionee(s): CGS

Phone Number(s):

Action Due Date: 6/1/2005

Action Completion Date:

Action: Update documents as recommended.

Action Status:

Open Action Items Report

Open Item Number AMS_02-ACOP_PDR-36

RID Open Date: 3/9/2005

RID Closure Date:

Title: SSP 52050 Reference

Affected Document: ACP-RP_CGS-003/Section 2.1

Initiator(s): Joseph Breit/IPIC PSI

Initiator(s) Phone Number: 281-226-4435

Description: Description of Problem:

Applicable documents lists an outdated version of SSP 52050.

Recommendation:

Replace reference to SSP 52050 Rev D with SSP 52050 Rev E (November 12, 2002). (Also needs to be updated in ACP-SP-CGS-001 & ACP-SQ-CGS-001.)

Impact if recommendation not implemented:

ACOP will be designed to out of date requirements.

Proposed Resolution:

Update references

RID Disposition: Approved

RID Status: Closure Pending Documentation

Action Item Information

Action Assigned?: Yes

Actionee(s): CGS
ASI

Phone Number(s):

Action Due Date: 6/1/2005

Action Completion Date:

Action: Update documents.

Action Status:

Open Action Items Report

Open Item Number AMS_02-ACOP_PDR-37

RID Open Date: 3/9/2005

RID Closure Date:

Title: HRDL Minimum Packet Size

Affected Document: ACP-RP-CGS-003/Section 5.3.2

Initiator(s): Joseph Breit/IPIC PSI

Initiator(s) Phone Number: 281-226-4435

Description: Description of Problem:

The document states that "Transmitter capable to transmit frame from 1 to 4096 bytes length." While this may be true, the HRDL CCSDS packet size requirement (SSP 52050 {3.4.2.4.1.2-A}) is that packets will be from 100 and 4096 bytes length (inclusive). This requirement should be noted to prevent any confusion regarding actual HRDL packet size requirement. (This statement also appears in ACP-SQ-CGS-001, paragraph 2.6.4.

Recommendation:

Note the actual HRDL packet size requirement.

Impact if recommendation not implemented:

Possible confusion regarding HRDL packet size requirement.

Proposed Resolution:

Add comment to document that states HRDL packet size limit

RID Disposition: Approved

RID Status: Closure Pending Documentation

Action Item Information

Action Assigned?: Yes

Actionee(s): Peter Dennett

Phone Number(s):

Action Due Date: 6/1/2005

Action Completion Date:

Action: Update document.

Action Status:

Open Action Items Report

Open Item Number AMS_02-ACOP_PDR-38

RID Open Date: 3/9/2005

RID Closure Date:

Title: Minimum Ku-band Packet Length

Affected Document: ACP-SP-CGS-001/Table 6.3

Initiator(s): Joseph Breit/IPIC PSI

Initiator(s) Phone Number: 281-226-4435

Description: Description of Problem:

The table defines the minimum packet length (PacketLen) for frames transmitted by AMS as 0 bytes. For Ku-band packets the minimum packet length is 93 bytes. (See SSP 41158 Table 4.1.1.1-1).

Recommendation:

Change the minimum packet length to 93 bytes.

Impact if recommendation not implemented:

Incorrectly sized Ku-band packets.

Proposed Resolution:

Implement recommendation

RID Disposition: Approved

RID Status: Closure Pending Documentation

Action Item Information

Action Assigned?: Yes

Actionee(s): Peter Dennett

Phone Number(s):

Action Due Date: 6/1/2005

Action Completion Date:

Action: Update document.

Action Status:

Open Action Items Report

Open Item Number AMS_02-ACOP_PDR-39

RID Open Date: 3/9/2005

RID Closure Date:

Title: Secondary CCSDS Header Requirements for Telemetry

Affected Document: ACP-SP-CGS-001/Table 6-4

Initiator(s): Joseph Breit/IPIC PSI

Initiator(s) Phone Number: 281-226-4435

Description: Description of Problem:

The table, in the PacketID2 row, contains a note that ‘‘Per SSP57002C this is Data Cycle Counter’’. Since AMS telemetry will not be processed by the HOSC, there is no requirement for AMS to implement a Data Cycle Counter in the Secondary Header. (See SSP 52050 Appendix D, paragraph E.)

Recommendation:

Remove the note.

Impact if recommendation not implemented:

Possible confusion over CCSDS Header requirements.

RID Disposition: Disapproved

RID Status: Open

Action Item Information

Action Assigned?: Yes

Actionee(s): Peter Dennett

Phone Number(s):

Action Due Date: 6/1/2005

Action Completion Date:

Action: Will remove note from document.

Action Status:

Open Action Items Report

Open Action Items Report

Open Item Number AMS_02-ACOP_PDR-40-1

RID Open Date: 3/9/2005

RID Closure Date:

Title: ER3 APIDs

Affected Document: ACP-SP-CGS-001/Section 6.3.2

Initiator(s): Joseph Breit/IPIC PSI

Initiator(s) Phone Number: 281-226-4435

Description: Description of Problem:

The APIDs listed for ACOP in ER3 are incorrect (except for the MCC-H to ACOP in ER3 APID, which is correct). This is actually my fault, as an email I sent to Peter Dennett with assigned APID numbers contained cut and paste errors for the ER3 (LAB1P4) locations.

Recommendation:

The correct APIDs are:

- 121 - POIC to ACOP in ER3 (LAB1P4)
- 221 - PCS/P1 to ACOP in ER3 (LAB1P4)
- 321 - PCS/P2 to ACOP in ER3 (LAB1P4)
- 421 - PCS/P3 to ACOP in ER3 (LAB1P4)
- 521 - PCS/P4 to ACOP in ER3 (LAB1P4)
- 621 - PCS/P5 to ACOP in ER3 (LAB1P4)

Impact if recommendation not implemented:

Improperly routed commands.

Proposed Resolution:

Update your list.

RID Disposition: Approved

RID Status: Closure Pending Documentation

Action Item Information

Action Assigned?: Yes

Actionee(s): Peter Dennett

Phone Number(s):

Action Due Date: 6/1/2005

Action Completion Date:

Open Action Items Report

Action:

Action Status: 04/27/05 - Action item due date changed to June 1, 2005 as this is a CDR related item and document will be released for CDR.

Open Action Items Report

Open Action Items Report

Open Item Number	AMS_02-ACOP_PDR-40-2	RID Open Date:	3/9/2005	RID Closure Date:	
Title:	ER3 APIDs	Affected Document:	ACP-SP-CGS-001/Section 6.3.2		
Initiator(s):	Joseph Breit/IPIC PSI	Initiator(s) Phone Number:	281-226-4435		

Description: *Description of Problem:*

The APIDs listed for ACOP in ER3 are incorrect (except for the MCC-H to ACOP in ER3 APID, which is correct). This is actually my fault, as an email I sent to Peter Dennett with assigned APID numbers contained cut and paste errors for the ER3 (LABIP4) locations.

Recommendation:

The correct APIDs are:

- 121 - POIC to ACOP in ER3 (LABIP4)*
- 221 - PCS/P1 to ACOP in ER3 (LABIP4)*
- 321 - PCS/P2 to ACOP in ER3 (LABIP4)*
- 421 - PCS/P3 to ACOP in ER3 (LABIP4)*
- 521 - PCS/P4 to ACOP in ER3 (LABIP4)*
- 621 - PCS/P5 to ACOP in ER3 (LABIP4)*

Impact if recommendation not implemented:

Improperly routed commands.

Proposed Resolution:

Update your list.

RID Disposition:	Approved	RID Status:	Closure Pending Documentation
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Action Item Information

Action Assigned?:	Yes	Actionee(s):	Joseph Breit/IPIC PSI	Phone Number(s):	281-226-4435
Action Due Date:	4/15/2005	Action Completion Date:			

Open Action Items Report

Action:

Action Status: 04/27/05 - Win Reid/OZ will talk to Joseph Breit/IPIC PSI to see if action item is being addressed.

Open Action Items Report

Open Item Number AMS_02-ACOP_PDR-41

RID Open Date: 3/9/2005

RID Closure Date:

Title: ISS Program Assigned APIDs

Affected Document: ACP-SP-CGS-001/Section 6.3.2

Initiator(s): Joseph Breit/IPIC PSI

Initiator(s) Phone Number: 281-226-4435

Description: Description of Problem:

The document states 'The ISS program has assigned the following values to AMS-02: APIDs: 974-983.' These values were originally assigned to AMS by PSI, but conflict with the desired AMS usage as documented in Table 6-6. PSI will update ISS program documentation (D684-11372-01) to agree with Table 6-6.

Recommendation:

Remove the statement in quotes above.

Impact if recommendation not implemented:

Confusion over which Ku-band APIDs have been assigned to AMS & ACOP.

RID Disposition: Approved

RID Status: Open

Action Item Information

Action Assigned?: Yes

Actionee(s): Peter Dennett

Phone Number(s):

Action Due Date: 6/1/2005

Action Completion Date:

Action: Will confirm with initiator if it is okay to roll this RID in with AMS_02-ACOP_PDR-40.

Action Status:

Open Action Items Report

Open Item Number AMS_02-ACOP_PDR-42

RID Open Date: 3/9/2005

RID Closure Date:

Title: Incorrect Requirement Trace for SRD-3.1.13-060

Affected Document: ACP-SQ-CGS-001/Section 3.1.1.3

Initiator(s): Joseph Breit/IPIC PSI

Initiator(s) Phone Number: 281-226-4435

Description: Description of Problem:

The requirements trace for SRD-3.1.13-060 incorrectly references ACP-SP-CGS-001 section 6.3.3.3.9.1. The correct reference should be to section 6.3.3.9.1.

Recommendation:

Correct the reference.

Impact if recommendation not implemented:

Broken requirements traceability.

Proposed Resolution:

Will update

RID Disposition: Approved

RID Status: Closure Pending Documentation

Action Item Information

Action Assigned?: Yes

Actionee(s): CGS

Phone Number(s):

Action Due Date: 6/1/2005

Action Completion Date:

Action: Update document.

Action Status:

Open Action Items Report

Open Item Number AMS_02-ACOP_PDR-43

RID Open Date: 3/9/2005

RID Closure Date:

Title: No Traceability to ISS Requirements

Affected Document: ACP-SQ-CGS-001/Paragraphs 3 &

Initiator(s): Joseph Breit/IPIC PSI

Initiator(s) Phone Number: 281-226-4435

Description: Description of Problem:

The SW Requirement Document provides no traceability to ISS requirements.

Recommendation:

Update sections 3 & 4 to provide traceability from AMS/ACOP project requirements to ISS requirements.

Impact if recommendation not implemented:

Impossible to assess AMS/ACOP understanding of ISS interface requirements.

Proposed Resolution:

Update as recommended and develop a Software Verification Plan based on SSP-52000-PVP and SSP-52050 (for HRDL only).

RID Disposition: Approved with Modification

RID Status: Open

Action Item Information

Action Assigned?: Yes

Actionee(s): CGS

Phone Number(s):

Action Due Date: 6/1/2005

Action Completion Date:

Action: Update as recommended and develop a Software Verification Plan based on SSP-52000-PVP and SSP-52050 (for HRDL only).

Action Status:

Open Action Items Report

Open Item Number AMS_02-ACOP_PDR-45

RID Open Date: 3/9/2005

RID Closure Date:

Title: Spare Slot in Thermal Model

Affected Document: ACP-RP-CGS-003

Initiator(s): Mike Capell/AMS

Initiator(s) Phone Number: +41 22 767 4706

Description: Description of Problem:

ACOP front panel HRDL connector is proposed to contain 2 Tx and 1 Rx fibers. This requires a Y cable which is unnecessarily complicated.

Recommendation:

Implement 2 HRDL connectors.

Impact if recommendation is not implemented:

Any change in HDRL connections within US lab will result in suboptimal cabling.

Proposed Resolution:

The front panel space is limited and junction will be made near by.

RID Disposition: Approved

RID Status: Open

Action Item Information

Action Assigned?: Yes

Actionee(s): CSIST
CGS

Phone Number(s):

Action Due Date: 6/1/2005

Action Completion Date:

Action: Update model and documentation for future work.

Action Status:

Open Action Items Report

Open Item Number AMS_02-ACOP_PDR-48-2

RID Open Date: 3/9/2005

RID Closure Date:

Title: Face Plate Connector Protection

Affected Document: N/A

Initiator(s): John Stanford/NT

Initiator(s) Phone Number: 281-483-1347

Description: Description of Problem:

Determine what loads (bump, kick, incidental) unprotected connectors will sustain (power, data and fiber optics).

Recommendation:

Determine current loads for standard ISS connectors. Perform analysis for fiber optics.

Proposed Resolution:

PE&I should provide the requirement for the generic power and data connectors for kick loads. ACOP team will determine the best way to apply these load: to the fiber connector.

RID Disposition: Approved

RID Status: Open

Action Item Information

Action Assigned?: Yes

Actionee(s): CGS

Phone Number(s):

Action Due Date: 6/1/2005

Action Completion Date:

Action: Determine best way to apply kick loads for fiber connector and complete analysis.

Action Status:

Open Action Items Report

Open Item Number AMS_02-ACOP_PDR-50-1

RID Open Date: 3/9/2005

RID Closure Date:

Title: Protection for Fiber Optic Cable

Affected Document: N/A

Initiator(s): John Stanford/NT

Initiator(s) Phone Number: 281-483-1347

Description: Description of Problem:

1. Define the length (or approximate length) of the fiber optic cable.
2. Determine what protection should be provided for the fiber optic cable, including special provisions, and procedures.
3. Determine special safety precautions.
4. Determine additional weight requirements (weight of protection material) based on protection strategies.

Proposed Resolution:

We agree that there is a potential issue. OZ will help us to define the length. Protection issue must be taken to safety panel.

RID Disposition: Approved

RID Status: Open

Action Item Information

Action Assigned?: Yes **Actionee(s):** Vergel Romero/Boeing PEI

Phone Number(s): 281-226-4498

Action Due Date: 4/15/2005

Action Completion Date:

Action: Determine location and routing of cables.

Action Status: 04/27/05 - In work. Vergel Romero/Boeing PEI gave a presentation to Mike Horkachuck/OZ3 in mid-March. Peter Dennett/AMS requested to be part of ACOP discussions. This issue will be discussed at the ACOP Flight Safety Review May 2 and 3. Paul Nemeth/ESCG requested that Mike Horkachuck/OZ3 be asked to attend the ACOP FSR.

Open Action Items Report

Open Item Number AMS_02-ACOP_PDR-50-2

RID Open Date: 3/9/2005

RID Closure Date:

Title: Protection for Fiber Optic Cable

Affected Document: N/A

Initiator(s): John Stanford/NT

Initiator(s) Phone Number: 281-483-1347

Description: Description of Problem:

1. Define the length (or approximate length) of the fiber optic cable.
2. Determine what protection should be provided for the fiber optic cable, including special provisions, and procedures.
3. Determine special safety precautions.
4. Determine additional weight requirements (weight of protection material) based on protection strategies.

Proposed Resolution:

We agree that there is a potential issue. OZ will help us to define the length. Protection issue must be taken to safety panel.

RID Disposition: Approved

RID Status: Open

Action Item Information

Action Assigned?: Yes

Actionee(s): APO

Phone Number(s):

Action Due Date: 6/1/2005

Action Completion Date:

Action: Coordinate with OZ and safety panel regarding routing and protection for cables.

Action Status:

Open Action Items Report

Open Item Number AMS_02-ACOP_PDR-54-1

RID Open Date: 3/9/2005

RID Closure Date:

Title: Correction of Applicable Documents

Affected Document: Various

Initiator(s): Leland Hill/ESCG

Initiator(s) Phone Number: 281-461-5710

Description: Description of Problem:

ACOP PDR documentation references an out of date document for the control of stress corrosion cracking. MSFC-SPEC-522B is used, this document has been replaced by MSFC-STD-3029, "Guidelines on the Selection of Metallic Materials for Stress Corrosion Cracking Resistance in Sodium Chloride Environments".

Recommendation:

Change all references of MSFC-SPEC-522B to MSFC-STD-3029.

Impact if recommendation not implemented:

Possible non-compliance with updated standards.

Proposed Resolution:

Update the document.

RID Disposition: Approved

RID Status: Open

Action Item Information

Action Assigned?: Yes **Actionee(s):** APO-Leland Hill/ESCG

Phone Number(s):

Action Due Date: 3/17/2005

Action Completion Date:

Action: Provide new specification.

Action Status:

Open Action Items Report

Open Item Number AMS_02-ACOP_PDR-54-2

RID Open Date: 3/9/2005

RID Closure Date:

Title: Correction of Applicable Documents

Affected Document: Various

Initiator(s): Leland Hill/ESCG

Initiator(s) Phone Number: 281-461-5710

Description: Description of Problem:

ACOP PDR documentation references an out of date document for the control of stress corrosion cracking. MSFC-SPEC-522B is used, this document has been replaced by MSFC-STD-3029, "Guidelines on the Selection of Metallic Materials for Stress Corrosion Cracking Resistance in Sodium Chloride Environments".

Recommendation:

Change all references of MSFC-SPEC-522B to MSFC-STD-3029.

Impact if recommendation not implemented:

Possible non-compliance with updated standards.

Proposed Resolution:

Update the document.

RID Disposition: Approved

RID Status: Open

Action Item Information

Action Assigned?: Yes

Actionee(s): CGS

Phone Number(s):

Action Due Date: 6/1/2005

Action Completion Date:

Action: Update documents.

Action Status:

Open Action Items Report

Open Item Number AMS_02-ACOP_PDR-56

RID Open Date: 3/9/2005

RID Closure Date:

Title: EMC Acceptance Testing

Affected Document: Verification Presentation

Initiator(s): Tim Urban/ESCG

Initiator(s) Phone Number: 281-461-5702

Description: Description of Problem:

The presentation states that EMC Acceptance Testing for FMs be emissions only and TO BE CONFIRMED.

Recommendation:

Urban will work with EV4 to confirm this.

RID Disposition: Approved

RID Status: Open

Action Item Information

Action Assigned?: Yes

Actionee(s): APO-Tim Urban

Phone Number(s):

Action Due Date: 4/15/2005

Action Completion Date:

Action: Confirm that EMC Acceptance Testing for FMs be emissions only.

Action Status: 04/27/05 - In work. Still no response from EV.

Open Action Items Report

Open Item Number AMS_02-ACOP_PDR-57-3

RID Open Date: 3/9/2005

RID Closure Date:

Title: Cabling for ACOP

Affected Document: Avionics Presentation

Initiator(s): Steve Porter/EAI

Initiator(s) Phone Number: 281-483-7149

Description: Description of Problem:

Power and Data cables for ACOP to be supplied by NASA as GFE? Need answer soon, and need to know if equivalent training models will be supplied.
Need to determine number that should be provided by customer.

Recommendation:

Define supplier.

Proposed Resolution:

All flight power and data cables will be provided. They will be in place based on the topology at the time. In addition, NASA will provide the front panel connector as well. All ground hardware must be provided by ACOP team.

RID Disposition: Approved

RID Status: Open

Action Item Information

Action Assigned?: Yes

Actionee(s): Win Reid/OZ

Phone Number(s): 281-226-4809

Action Due Date: 8/1/2005

Action Completion Date:

Action: Provide all cables and connectors required for flight hardware.

Action Status:

Open Action Items Report

Open Item Number AMS_02-CDR-06

RID Open Date: 5/1/2003

RID Closure Date:

Title: AMS-CDR-1-17: Meteoroid/Orbital Debris Shielding

Affected Document: AMS-02 CDR Version 2

Initiator(s): E. Christiansen/NASA

Initiator(s) Phone Number: 281-483-5311

Description: Shielding from meteoroid/debris impact is inadequate to meet protection requirements. Shielding of pressurized vessels on AMS-02 such as the vacuum case and TRD (as well as any other pressure vessel) is required to prevent catastrophic rupture of these tanks in the event of meteoroid/debris impact which would release high-velocity fragments creating a potentially serious safety issue for on-board crew. The assessed probability of no penetration (PNP) using specified environment models is 0.97 which is far below the specified 0.997 PNP requirement. Updating ballistic limit equations and models as described in the forward work plan does not appear adequate to show compliance with requirements. Additional or significantly enhanced shielding will likely be necessary to meet safety requirements.

RID Disposition: Approved

RID Status: Open - Deferred to next cycle review

Action Item Information

Action Assigned?: Yes

Actionee(s): Dana Lear/ESCG

Phone Number(s): 281-483-2998

Action Due Date: 7/1/2006

Action Completion Date:

Action: Complete analysis and coordinate design of debris shields. To be completed by Phase III Safety.

Action Status: 02/09/05 - Chris Tutt/ESCG sent an email to Dana Lear/ESCG requesting a letter from Eric Christiansen/KX with the requirements and his signature.

01/19/05 - L. Hill/LMSO to get in touch with D. Lear/LMSO to discuss what L. Hill/LMSO needs for Phase II. C. Tutt/LMSO, P. Mott/LMSO, & R. Harold/LMSO need to be involved. T. Martin/EA stated that anything pressure safety critical needs to be covered.

Open Action Items Report

Open Item Number AMS_02-CDR-08

RID Open Date: 5/1/2003

RID Closure Date:

Title: AMS-CDR-2-07: Bolt in Sloppy Holes Assured to Take Shear

Affected Document: N/A

Initiator(s): B. Ritter/GSFC

Initiator(s) Phone Number: 301-286-9022

Description: Bolts attaching the support ring to the conical flange were assumed to transfer shear, even though they are in sloppy holes this is non-conservative.

RID Disposition: Approved

RID Status: Open

Action Item Information

Action Assigned?: Yes

Actionee(s): Chris Tutt/ESCG

Phone Number(s): 281-461-5703

Action Due Date: 5/31/2005

Action Completion Date:

Action: Work with SWG to resolve concerns with compliance with NASA-STD-08307, including bolts in sloppy holes being assumed to take shear.

Action Status: 02/09/05 - Action item due date was changed to May 31, 2005. Bolt analysis was done to Lockheed Martin standards. Structures Working Group (SWG) has new standards. Currently looking to see how many interfaces have issues and what needs to be done. Action item was changed from 'Work bolt concerns with the SWG.' to 'Work with SWG to resolve concerns with compliance with NASA-STD-08307, including bolts in sloppy holes being assumed to take shear.'

Open Action Items Report

Open Item Number AMS_02-CDR-09

RID Open Date: 5/1/2003

RID Closure Date:

Title: AMS-CDR-2-15: Missing Documents - Structural Analysis

Affected Document: N/A

Initiator(s): Murthy Pinnamaneni Structures/Boeing

Initiator(s) Phone Number: 281-226-5665

Description: The following items were not available in the Data Package: design load factors, dynamic analysis procedure and results. From 2.2.1, AMS Report Outline.doc, Magnetic Strap Analysis and the Coupled Loads Analysis, which are identified to be in "separate sections." Reports/documents that include: Dynamic Loads Analysis Description; Payload/Shuttle Interface Loads; Trunnion Deflection; Trunion Misalignment Loads; and Uncertainty Factors Used in the Analysis.

RID Disposition: Approved

RID Status: Closure Pending Documentation

Action Item Information

Action Assigned?: Yes

Actionee(s): Chris Tutt/ESCG

Phone Number(s): 281-461-5703

Action Due Date: 7/1/2006

Action Completion Date:

Action: Update stress report and dynamics analyses reports. To be completed by Phase III Safety Data Pack.

Action Status:

Open Action Items Report

Open Item Number AMS_02-CDR-12

RID Open Date: 5/1/2003

RID Closure Date:

Title: AMS-CDR-4-18: Presentation Issues

Affected Document: Avionics & ACOP Presentations

Initiator(s): H. Hoang/PEI
J. Fu/PEO

Initiator(s) Phone Number: 281-226-6054

Description: The presentation for avionics is not adequate for documentation purpose to show compliance with SSP 57003 requirements.

RID Disposition: Approved

RID Status: Open

Action Item Information

Action Assigned?: Yes **Actionee(s):** Tim Urban/ESCG

Phone Number(s): 281-461-5702

Action Due Date: 3/31/2005

Action Completion Date:

Action: Supply document listing EMI/electrical specs.

Action Status: 04/27/05 - Henry Hoang/Boeing PEI has not been returning Tim Urban/ESCG calls. Win Reid/OZ to get with Henry Hoang/Boeing PEI.

02/09/05 - Try to get initiator's approval to merge this CDR action item with AMS-CDR-4-20 (OPMT action item AMS_02-CDR-13 by next CCB. Action item due date was changed to March 31, 2005.

01/05/05 - Paul Nemeth/LMSO to ask initiator if this RID can be rolled into RID AMS-CDR-4-18 and Open Action Item AMS_02-CDR-13.

Open Action Items Report

Open Item Number AMS_02-CDR-13

RID Open Date: 5/1/2003

RID Closure Date:

Title: AMS-CDR-4-20: Power Compatibility and EMC Testing

Affected Document: Avionics Overview

Initiator(s): H. Hoang/PEI
J. Fu/PEO

Initiator(s) Phone Number: 281-226-6054

Description: The EME Control Plan (or equivalent) used to establish the plan for how AMS will be compatible with the ISS EMI requirements is lacking in the CDR package.

RID Disposition: Approved

RID Status: Open

Action Item Information

Action Assigned?: Yes

Actionee(s): Tim Urban/ESCG

Phone Number(s): 281-461-5702

Action Due Date: 3/31/2005

Action Completion Date:

Action: Supply EME control plan.

Action Status: 04/27/05 - An independent plan is not necessary. Waiting for concurrence from Henry Hoang/Boeing PEI to close action.

02/09/05 - Try to get initiator's approval to merge this CDR action item with AMS-CDR-1-18 (OPMT action item AMS_02-CDR-12 by next CCB. Action item due date was changed to March 31, 2005.

01/05/05 - Tim Urban/LMSO to provide status March 2005.

Open Action Items Report

Open Item Number AMS_02-CDR-14

RID Open Date: 5/1/2003

RID Closure Date:

Title: AMS-CDR-4-24: No Cable List and Derating Analysis of Cables

Affected Document: N/A

Initiator(s): D. Beverly/EEE

Initiator(s) Phone Number: 281-483-0250

Description: There is no evidence of wiring or external cable list. The derating of the wire and cables has not been performed.

RID Disposition: Approved

RID Status: Open

Action Item Information

Action Assigned?: Yes

Actionee(s): Dewey Nguyen/ESCG
Tim Urban/ESCG

Phone Number(s): 281-461-5681
281-461-5702

Action Due Date: 10/30/2004

Action Completion Date:

Action: Supply wire list and derating details.

Action Status: 04/27/05 - Missing some parts. Tim Urban/ESCG will get with D. Beverly/EEE as soon as the list is complete. Next status date is May 11, 2005 or next CCB/Tag-up meeting

02/09/05 - Dewey Nguyen/ESCG has parts list but it is more complex than needed. Distilling and derating list in work. Next status date is March 31, 2005.

01/05/05 - Changes have been submitted and is under review by Shuttle Avionics Integration.

Open Action Items Report

Open Item Number AMS_02-CDR-15

RID Open Date: 5/1/2003

RID Closure Date:

Title: AMS-CDR-4-25: Connector Designator in AMS-02 Wiring Diagram

Affected Document: SIG39136082

Initiator(s): Y. Jaurigue/AG-92-J34B

Initiator(s) Phone Number: 281-226-5634

Description: I/F Panel A P6/J6 should be P7/J7 to interface from the Standard Switch Panel (SSP), using the standard mixed cargo harness, to AMS-02 control electronics per earlier agreement between the customer & USA/NASA ("Proposed STS cabling requirements for AMS-02" agreed to October 30, 2001: Danny Irvin, Mariella Hartgerink, Michael Gerlach, and Ed Walters).

RID Disposition: Approved

RID Status: Open

Action Item Information

Action Assigned?: Yes **Actionee(s):** Paul Nemeth/ESCG
Tim Urban/ESCG

Phone Number(s): 281-461-5715
281-461-5702

Action Due Date: 10/30/2004

Action Completion Date:

Action: Implement recommendation.

Action Status: 04/27/05 - Drawing has been updated. Drawing was emailed and a hard copy delivered to Y. Jaurigue/USA. No response from United Space Alliance (USA). Trent Martin/EA2 requested that if still no response from USA by May 22, 2005, Tim Urban/ESCG to send email to Trent Martin/EA (cc Win Reid/OZ) requesting action.

03/16/05 - Waiting for formal agreement so action can be closed. Action will be closed as soon as email agreement received.

03/16/05 - An E-mail was sent to Y. Jaurigue to formally close out Alpha Magnetic Spectrometer RID No. AMS-CDR-4-25. Drawing SIG39136083 has been updated with the red-lined recommendations. This drawing is available for your further review, if required. Otherwise, please reply to all with your concurrence.

02/09/05 - Waiting for Boeing import/export approval. Gene Cook/OZ requested a couple of days to work this issue.

01/05/05 - Changes have been submitted and is under review by Shuttle Avionics Integration.

10/05/04 - Paul Nemeth to check on status of action

Open Action Items Report

Open Action Items Report

Open Item Number AMS_02-CDR-16

RID Open Date: 5/1/2003

RID Closure Date:

Title: AMS-CDR-4-26: AMS-02 Wiring Schematic

Affected Document: SIG39136082

Initiator(s): Y. Jaurigue/AG-92-J34B

Initiator(s) Phone Number: 281-226-5634

- Description:**
1. On sheet 3, i/f panel a connector p6/j6 should be p7/j7 to interface to the ssp via smch cabling per earlier agreement (``proposed sts cabling requirement for ams-02 `` agreed in october 30, 2001: danny irvin, mariella hartgerink, michael gerlach, and ed walters). Also the emc classification for interface wiring through j6/p6 appears to be rf. Change the shielded pair wires to twisted pair wires for eo, ho, or ml class wiring - where appropriate. Redlines will be given @ ams-02 cdr avionics splinter.
 2. On sheet 3, the interface wiring through i/f panel a connector p5/j5 has two return line when there is only one available on p5 pin 35. Also, the 3 discrete output low signals from the mdm pf1 are available on pda connector p5 pins 32, 33 and 34.
 3. On sheet 3, the interface wiring through i/f panel a connector j4/p4 is missing a pair of shielded ground wires for rs-422 #1 and #2. Pin 9 of pda connector p4 is assigned for rs-422 #2 gnd and pin 10 of pda connector p4 is for rs422 #1.
 4. On sheet 3, interface wiring from ams-02 rs-422 #1 and #2 through i/f panel a connector j4/p4 to pdip2 p103 / j103 is different from the ``proposed sts cabling requirement for ams-02 `` provided to paul nemeth via e-mail from d. Irvin on 12/07/2001 and boeing control schematic vs72-config 1 last revised on 11/24/2002. A unique cable will have to be built to support ams-02 rf requirements.
 5. This drawing should show the ams-02/gfe cable required to provide connectivity between ams-02 rs-422 service and t-0 connector j59.

RID Disposition: Approved

RID Status: Open

Action Item Information

Action Assigned?: Yes

Actionee(s): Paul Nemeth/ESCG
Tim Urban/ESCG

Phone Number(s): 281-461-5715
281-461-5702

Action Due Date: 10/30/2004

Action Completion Date:

Action: Implement recommendation.

Action Status: 04/27/05 - Drawing has been updated. Drawing was emailed and a hard copy delivered to Y. Jaurigue/USA. No response from United Space Alliance (USA). Trent Martin/EA2 requested that if still no response from USA by May 22, 2005, Tim Urban/ESCG to send email to Trent Martin/EA (cc Win Reid/OZ) requesting action.

03/16/05 - Waiting for formal agreement so action can be closed. Action will be closed as soon as email agreement received.

03/16/05 -Tim Urban/ESCG replied that there was a mistake in his notes. He will provide Yvonne Jaurigue/Boeing a copy of SIG39136082.

Open Action Items Report

03/16/05 - Yvonne Jaurigue/Boeing replied stating that RID No. AMS-CDR-4-25 is against document SIG39136082. She did not concur because she has not seen updates to this drawing to verify that the recommendation has been implemented. She requested a copy of the update to SIG39136082 to support closeout of this RID.

03/16/05 - An E-mail was sent to Y. Jaurigue to formally close out Alpha Magnetic Spectrometer RID No. AMS-CDR-4-25. Drawing SIG39136083 has been updated with the red-lined recommendations. This drawing is available for your further review, if required. Otherwise, please reply to all with your concurrence.

02/09/05 - Waiting for Boeing import/export approval. Gene Cook/OZ requested a couple of days to work this issue.

01/05/05 - Changes have been submitted

Open Action Items Report

Open Item Number AMS_02-CDR-17-1

RID Open Date: 5/1/2003

RID Closure Date:

Title: AMS-CDR-4-28: SPHe Electronics to I/F Panel A, GPC Cable Assembly, W11

Affected Document: SEG39136103

Initiator(s): Y. Jaurigue/AG-92-J34B

Initiator(s) Phone Number: 281-226-5634

Description: Sheet 2 of the above documents has two return lines when there is only one available on J5 mating Connector P5 Pin 35. Interface from the MDM PF1 which provides 3 discrete output low signals to the AMS-02 control electronics are available on connector P5 Pins 32, 33, and 34.

RID Disposition: Approved

RID Status: Open

Action Item Information

Action Assigned?: Yes

Actionee(s): Dewey Nguyen/ESCG
Tim Urban/ESCG

Phone Number(s): 281-461-5681
281-461-5702

Action Due Date: 1/31/2005

Action Completion Date:

Action: Implement recommendation.

Action Status: 04/27/05 - Drawing has been updated. Drawing was emailed and a hard copy delivered to Y. Jaurigue/USA. No response from United Space Alliance (USA). Trent Martin/EA2 requested that if still no response from USA by May 22, 2005, Tim Urban/ESCG to send email to Trent Martin/EA (cc Win Reid/OZ) requesting action.

03/16/05 - Waiting for formal agreement so action can be closed. Action will be closed as soon as email agreement received.

03/16/05 - An E-mail was sent to the initiator to formally close out Alpha Magnetic Spectrometer RID No. AMS-CDR-4-28. Drawing SEG39136103 has been updated with the red-lined recommendations. This drawing is available for your further review, if required. Otherwise, please reply to all with your concurrence.

02/09/05 - Waiting for Boeing import/export approval. Gene Cook/OZ requested a couple of days to work this issue.

01/05/05 - Changes have been submitted and is under review by Shuttle Avionics Integration.

Open Action Items Report

Open Item Number AMS_02-CDR-17-2

RID Open Date: 5/1/2003

RID Closure Date:

Title: AMS-CDR-4-28: SPHe Electronics to I/F Panel A, GPC Cable Assembly, W11

Affected Document: SEG39136103

Initiator(s): Y. Jaurigue/AG-92-J34B

Initiator(s) Phone Number: 281-226-5634

Description: Sheet 2 of the above documents has two return lines when there is only one available on J5 mating Connector P5 Pin 35. Interface from the MDM PF1 which provides 3 discrete output low signals to the AMS-02 control electronics are available on connector P5 Pins 32, 33, and 34.

RID Disposition: Approved

RID Status: Open

Action Item Information

Action Assigned?: Yes

Actionee(s): Steve Harrison/SCL

Phone Number(s):

Action Due Date: 1/31/2005

Action Completion Date:

Action: Interface definition for control electronics to Vacuum Vent Valve

Action Status:

Open Action Items Report

Open Item Number AMS_02-CDR-21

RID Open Date: 5/1/2003

RID Closure Date:

Title: AMS-CDR-4-32: Missing Documents - Avionics

Affected Document: N/A

Initiator(s): Y. Jaurigue/AG-92-J34B

Initiator(s) Phone Number: 281-226-5634

Description: From the Flight Avionics Drawing Index, the following items were not available for review in the data package: 39136117 ROEU Connector Panel (Panel A), 39136118 ROEU Connector Panel Bracket (EW, YJ).

RID Disposition: Approved

RID Status: Open

Action Item Information

Action Assigned?: Yes

Actionee(s): Paul Nemeth/ESCG
Tim Urban/ESCG

Phone Number(s): 281-461-5715
281-461-5702

Action Due Date: 11/15/2004

Action Completion Date:

Action: Implement recommendation.

Action Status: 04/27/05 - Drawing has been updated. Drawing was emailed and a hard copy delivered to Y. Jaurigue/USA. No response from United Space Alliance (USA). Trent Martin/EA2 requested that if still no response from USA by May 22, 2005, Tim Urban/ESCG to send email to Trent Martin/EA (cc Win Reid/OZ) requesting action.

03/16/05 - Tim Urban/ESCG to follow up on this issue. Action item should be closed by March 24, 2005.

01/05/05 - Changes have been submitted and is under review by Shuttle Avionics Integration.

11/18 - check status of action item on 11/29/04

Open Action Items Report

Open Item Number AMS_02-CDR-22

RID Open Date: 5/1/2003

RID Closure Date:

Title: AMS-CDR-4-33: RS422 DDRS-02/PDIP Cable Assembly

Affected Document: SED39136111

Initiator(s): Y. Jaurigue/AG-92-J34B

Initiator(s) Phone Number: 281-226-5634

Description: 1. The ``GND`` Pin for PDIP2 on connector P105 will mate with connector J105 pin 7.

2. Please see RID (boeing tracking number) ``Boeing-14 RID AFD AMS-02 wiring Schematic`` against SID39136110. The communication flow in the above document is unclear via the end to end interface nomenclatures. The RS-422 transmit and receive signal can be misinterpreted by the payload (AMS-02) and result in a last minute payload wiring.

Please note there is a concern regarding the second RS-422 interface from PDIP2 P105 to PDIP1 J4 which can potentially interfere with a shared use of the ku-band signal processor. It is preferred that only the required signal interface to PDIP1 J4 is used. If the high data rate digital data input of the ku-band signal processor is required per SIG39136083, use connector J4 (mating connector for P4) on PDIP1 Pin 15 and 16.

RID Disposition:

RID Status: Open

Action Item Information

Action Assigned?: Yes

Actionee(s): Paul Nemeth/ESCG

Phone Number(s): 281-461-5715

Action Due Date: 11/30/2004

Action Completion Date:

Action: Supply EME control plan.

Action Status: 03/16/05 - Waiting for formal agreement so action can be closed. Action will be closed as soon as email agreement received.

03/16/05 - An E-mail was sent to the initiator to formally close out Alpha Magnetic Spectrometer RID No. AMS-CDR-4-33. Drawing SEG39136111 has been updated with the red-lined recommendations. This drawing is available for your further review, if required. The initiator was requested to reply to all with her concurrence.

02/09/05 - Waiting for Boeing import/export approval. Gene Cook/OZ requested a couple of days to work this issue.

01/05/05 - Changes have been submitted and is under review by Shuttle Avionics Integration.

11/18 - check status of action item on 11/29/04

Open Action Items Report

Open Action Items Report

Open Item Number AMS_02-CDR-23

RID Open Date: 5/1/2003

RID Closure Date:

Title: AMS-CDR-4-34: RS422 T-0/PDIP Cable Assembly

Affected Document: SED39136112

Initiator(s): Y. Jaurigue/AG-92-J34B

Initiator(s) Phone Number: 281-226-5634

Description: 1. The ``GND`` Pin for PDIP2 on connector P105 will mate with connector J105 Pin 7. Also, the gnd wire routed to connector P4 is in consistence with drawing SID39136110, which routes the same wire to P103.

2. Please see rid for SID39136110. The communication flow in the above document is unclear via the end to end interface nomenclatures. The RS-422 transmit and receive signal can be misinterpreted by the payload (AMS-02) and result in a last minute payload wiring.

Please note there is a concern regarding the second RS-422 interface from PDIP2 P105 to PDIP1 J4 which can potentially interfere with a shared use of the ku-band signal processor. It is preferred that only the required signal interface to PDIP1 J4 is used. If the high data rate digital data input of the ku-band signal processor is required per SIG39136083, use connector J4 (mating connector for P4) on PDIP1 Pin 15 and 16.

Also, it is recommended that pin to pin interface from PDIP2 P105 to P103 be as follows:

PDIP2 P105 - 3, 7, 6, 5, 12, 13, 10, 9, 2, 1

PDIP P103 - 3, 7, 13, 12, 5, 6, 10, 9, 2, 1

RID Disposition: Approved

RID Status: Open

Action Item Information

Action Assigned?: Yes

Actionee(s): Paul Nemeth/ESCG

Phone Number(s): 281-461-5715

Action Due Date: 10/30/2004

Action Completion Date:

Action: Implement recommendation.

Action Status: 04/27/05 - Drawing has been updated. Drawing was emailed and a hard copy delivered to Y. Jaurigue/USA. No response from United Space Alliance (USA). Trent Martin/EA2 requested that if still no response from USA by May 22, 2005, Tim Urban/ESCG to send email to Trent Martin/EA (cc Win Reid/OZ) requesting action.

03/16/05 - Waiting for formal agreement so action can be closed. Action will be closed as soon as email agreement received.

03/16/05 - An E-mail was sent to the initiator to formally close out Alpha Magnetic Spectrometer RID No. AMS-CDR-4-34. Drawing SEG39136112 has been updated with the red-lined recommendations. This drawing is available for your further review, if required. The initiator was requested to reply to all with her concurrence.

Open Action Items Report

02/09/05 - Waiting for Boeing import/export approval. Gene Cook/OZ requested a couple of days to work this issue.

01/05/05 - Changes have been submitted and is under review by Shuttle Avionics Integration.

11/18 - check status of action item on 11/29/04

Open Action Items Report

Open Item Number AMS_02-Thermal_CDR-01

RID Open Date: 4/4/2005

RID Closure Date:

Title: Design Loads Not Specified

Affected Document: CAB Loop Heat Pipe Specifications

Initiator(s): Chris Tutt/ESCG

Initiator(s) Phone Number:

Description: DISCREPANCY:

Launch load requirement only states that the manufacturer will provide data on load levels that similar designs have seen on other missions. Requirement should define actual design loads for all flight events. (Launch loads may not provide worst case loads in all axes.)

SUGGESTED SOLUTION

Develop design loads using all flight events, including relative displacement of CAB and wake radiator.

SCREENING PANEL CHAIRPERSON SIGNATURE

H. LO (JSC)

SUPPLIER'S RESPONSE

TO OHB

RID Disposition: Accepted

RID Status: Open

Action Item Information

Action Assigned?: Yes

Actionee(s):

Phone Number(s):

Action Due Date: 6/15/2005

Action Completion Date:

Action: Develop design loads using all flight events, including relative displacement of CAB and wake radiator.

Action Status:

Open Action Items Report

Open Item Number AMS_02-Thermal_CDR-02

RID Open Date: 4/4/2005

RID Closure Date:

Title: Materials Specifications Vague

Affected Document: CAB Loop Heat Pipe Specification a

Initiator(s): Chris Tutt/ESCG

Initiator(s) Phone Number: 281-461-5703

Description: DISCREPANCY

Materials requirement states "Selection of LHP material and manufacturing processes shall be such as to avoid material compatibility and structural problems in order to meet the required LHP performance over the specified lifetime." It is not clear if this includes designing to avoid stress corrosion cracking issues.

SUGGESTED SOLUTION

Add "LHP materials will be selected from those having high resistance to stress corrosion cracking as defined in MSFC-STD-3029. Materials with moderate or low resistance to stress corrosion cracking will be used only with prior, written approval of the buyer."

SCREENING PANEL CHAIRPERSON SIGNATURE

H. LO (JSC)

SUPPLIER'S RESPONSE

Same material is used for cryocooler LHP. Specification already provided at CDR (March 2004). Informations already provided to JSE for Safety review and accepted.

ADDITIONAL COMMENTS

Obtain MSFC-STD-3029.

RID Disposition:

RID Status: Open

Action Item Information

Action Assigned?: Yes

Actionee(s):

Phone Number(s):

Action Due Date:

Action Completion Date:

Action: Add "LHP materials will be selected from those having high resistance to stress corrosion cracking as defined in MSFC-STD-3029. Materials with moderate or low resistance to stress corrosion cracking will be used only with prior, written approval of the buyer." Obtain MSFC-STD-3029.

Action Status:

Open Action Items Report

Open Item Number AMS_02-Thermal_CDR-03

RID Open Date: 4/4/2005

RID Closure Date:

Title: Design Pressures Based on Operational Temperature

Affected Document: General Loop Heat Pipe/Heat Pipe

Initiator(s): Chris Tutt/ESCG

Initiator(s) Phone Number: 281-461-5703

Description: DISCREPANCY

In each specification, the requirement states "The LHP shall be designed for an internal Maximum Operating Pressure which is equal to the vapour pressure of the working fluid at Maximum Operating Temperature." The LHP should instead be designed to survive the Maximum Design Pressure, which will be the larger of either the pressure of the working fluid at the maximum survival temperature or, for those LHPs using ammonia as the working fluid, the maximum pressure that could occur in a trapped volume if the ammonia were to freeze and undergo local thawing.

SUGGESTED SOLUTION

Replace Maximum Operating Pressure with Maximum Design Pressure and change description of required calculations to match.

SCREENING PANEL CHAIRPERSON SIGNATURE

H. LO (JSC)

SUPPLIER'S RESPONSE

ESA dimensioning rule has been used, explained and concurred with LMSO structural and Safety responsables.

ADDITIONAL COMMENTS

Different definitions in Europe, as discussed with Bala. Issue will be discussed with him.

RID Disposition: Accepted

RID Status: Open

Action Item Information

Action Assigned?: Yes

Actionee(s):

Phone Number(s):

Action Due Date:

Action Completion Date:

Action: Replace Maximum Operating Pressure with Maximum Design Pressure and change description of required calculations to match.

Action Status:

Open Action Items Report

Open Item Number AMS_02-Thermal_CDR-06

RID Open Date: 4/4/2005

RID Closure Date:

Title: CAB MLI Discrepancy

Affected Document: AMS-02 MLI Description and CAB

Initiator(s): Chris Tutt/ESCG

Initiator(s) Phone Number: 2/81-461-5703

Description: DISCREPANCY

Section 3.3 of the CAB LHP Freezing Assessment states that MLI is needed over the cylindrical spring section of the LHP and the section running across the top of the CAB. These areas do not appear to be covered by MLI based on the description in the CAB section of the MLI document.

SUGGESTED SOLUTION

Add drawing to MLI description showing where CAB MLI is located relative to the CAB LHP. Add MLI to cover required sections of CAB LHP if not currently present.

SUPPLIER'S RESPONSE

We' ll do that as the CAB TCS design is completed.

RID Disposition: Accepted

RID Status: Open

Action Item Information

Action Assigned?: Yes

Actionee(s):

Phone Number(s):

Action Due Date:

Action Completion Date:

Action: Add drawing to MLI description showing where CAB MLI is located relative to the CAB LHP. Add MLI to cover required sections of CAB LHP if not currently present.

Action Status:

Open Action Items Report

Open Item Number AMS_02-Thermal_CDR-07

RID Open Date: 4/4/2005

RID Closure Date:

Title: PDS Fastener Descriptions Unclear

Affected Document: AMS-02 Fasteners List/AMS02_fast

Initiator(s): Chris Tutt/ESCG

Initiator(s) Phone Number: 281-461-5703

Description: DISCREPANCY

The CGS portion of the fastener list appears to be divided into sections with each group listing bolts, washers, and helicoils used, in that order. The first section of the PDS list calls out 280 bolts but only 210 helicoils. It is not clear if this is a typographical error or if some bolts do not have helicoils.

SUGGESTED SOLUTION

If typographical error, please correct. If not, please identify on the PDS drawings which fasteners do not have helicoil inserts. For each fastener that does not, please identify secondary locking feature.

SCREENING PANEL CHAIRPERSON SIGNATURE

H JO (JSC)

SUPPLIER'S RESPONSE

The table shall be updated

RID Disposition: Accepted

RID Status: Open

Action Item Information

Action Assigned?: Yes

Actionee(s):

Phone Number(s):

Action Due Date: 6/15/2005

Action Completion Date:

Action: If typographical error, please correct. If not, please identify on the PDS drawings which fasteners do not have helicoil inserts. For each fastener that does not, please identify secondary locking feature.

Action Status:

Open Action Items Report

Open Item Number AMS_02-Thermal_CDR-09

RID Open Date: 4/4/2005

RID Closure Date:

Title: Touch Temperature and Ammonia Freezing Analysis

Affected Document: AMS-02 LTA Report/AMS02-RP-CG

Initiator(s): Chris Tutt/ESCG

Initiator(s) Phone Number: 281-461-5711

Description: DISCREPANCY

Report does not address analysis of TCS hardware for safety requirements during LTA phases.

SUGGESTED SOLUTION

Provide data on worst case hot temperature of all TCS hardware not shaded from EVA contact and provide data on worst case cold temperatures for all heat pipes and loop heat pipes containing ammonia as working fluid.

SUPPLIER'S RESPONSE

List of AMS locations to be checked for unlimited contact is: handrails, EVA connector panel, capture bar. Nodes ID to be provided.

CGS will provide maximum temperatures for locations mentioned above and for all external location (to be checked against incidental contact requirements).

All axial grooved heat pipes are designed to freeze, no verification needed.

For CAB LHP freezing, look document 'CAB LHP freezing assessment' AMS02-CGS-TN-010 issue 1 that shows LHP ammonia will not freeze.

ADDITIONAL COMMENTS

C. Clark to provide Nodes, week of 25 Apr. or following.

RID Disposition: Accepted

RID Status: Open

Action Item Information

Action Assigned?: Yes

Actionee(s):

Phone Number(s):

Action Due Date: 4/30/2005

Action Completion Date:

Action: Provide data on worst case hot temperature of all TCS hardware not shaded from EVA contact and provide data on worst case cold temperatures for all heat pipes and loop heat pipes containing ammonia as working fluid.

Action Status:

Open Action Items Report

Open Item Number AMS_02-Thermal_CDR-11

RID Open Date: 4/4/2005

RID Closure Date:

Title: Use of Friction in Bolt Analysis

Affected Document: Main and Tracker Radiator Structur

Initiator(s): Bruce Sommer/ESCG

Initiator(s) Phone Number: 281-461-5700

Description: DISCREPANCY

Section 8.1.1.5 describes the use of friction grip designs for bolted connections. NASA ES does not allow for the use of friction to transfer shear in bolted connections.

SUGGESTED SOLUTION

Assume that all shear loads are transferred directly to the fasteners and recalculate margins of safety.

SCREENING PANEL CHAIRPERSON SIGNATURE

H LO (JSC)

BOARD DISPOSITION

Clarify if the friction does not have to use to show positive MoS for the fasteners

ADDITIONAL COMMENTS

CGS and OHB structural people not at April 20 telecon. OHB did it in two ways. BS will look again.

RID Disposition: Accepted

RID Status: Open

Action Item Information

Action Assigned?: Yes

Actionee(s):

Phone Number(s):

Action Due Date:

Action Completion Date:

Action: Clarify if the friction does not have to use to show positive MoS for the fasteners

Action Status:

Open Action Items Report

Open Item Number AMS_02-Thermal_CDR-14

RID Open Date: 4/4/2005

RID Closure Date:

Title: E-Crate bolt analysis

Affected Document: E-Crate Structural Analysis Report/

Initiator(s): Bruce Sommer/ESCG

Initiator(s) Phone Number: 581-461-5700

Description: DISCREPANCY

Only the analysis for the bolts joining the E-Crate to the USS-02 and the E-Crate Walls to the Bottom Plate are documented in the report.

SUGGESTED SOLUTION

Update the report to show analysis for all structural bolted joints in E-Crate. (example: The E-Crate side panels attachment to one another.)

SCREENING PANEL CHAIRPERSON SIGNATURE

H LO (JSC)

SUPPLIER'S RESPONSE

THE ANALYSIS SHALL BE PERFORMED

RID Disposition: Accepted

RID Status: Open

Action Item Information

Action Assigned?: Yes

Actionee(s):

Phone Number(s):

Action Due Date: 6/15/2005

Action Completion Date:

Action: Update the report to show analysis for all structural bolted joints in E-Crate.

Action Status:

Open Action Items Report

Open Action Items Report

Open Item Number AMS_02-Thermal_CDR-15

RID Open Date: 4/4/2005

RID Closure Date:

Title: Inconsistent NAS1351 Bolt Yield Strengths

Affected Document: Main and Tracker Radiator Structur

Initiator(s): Bruce Sommer/ESCG

Initiator(s) Phone Number: 281-461-5700

Description: DISCREPANCY

Yield strength for NAS1351 bolts in OHB report is not the same as the yield strength for the same fastener type in the CGS report. This is consistent for all OHB v.s. CGS reports.

Bolt NAS1351

OHB Yield Allowable 950 MPa (138 ksi)

CGS Yield Allowable 827 MPa (120 ksi)

SUGGESTED SOLUTION

Find the documentation that verifies the yield strength of the fastener and update all reports to include the same allowable for the same bolt type.

SCREENING PANEL CHAIRPERSON SIGNATURE

H LO (JSC)

SUPPLIER'S RESPONSE

CGS value comes from LMSO

BOARD DISPOSITION

CGS and OHB provide reference document for fasteners yield strength

ADDITIONAL COMMENTS

Normally MIL Handbook 5H is used. RS will send it and talk about it offline.

RID Disposition: Accepted

RID Status: Open

Action Item Information

Action Assigned?: Yes

Actionee(s):

Phone Number(s):

Action Due Date:

Action Completion Date:

Open Action Items Report

Action:

Action Status: 04/25/05 - Procurement specifications FFS86E for NAS1351 fasteners was sent to CGS and OHB on 04/25/05. Page 7 of the document shows a minimum yield strength for these bolts is 120 ksi.

Open Action Items Report

Open Action Items Report

Open Item Number AMS_02-Thermal_CDR-17

RID Open Date: 4/7/2005

RID Closure Date:

Title: Insert test and its applicability to different size of insert

Affected Document: Main and Trackor Structural Analys

Initiator(s): H. C. Lo/NASA-JSC

Initiator(s) Phone Number:

Description: DISCREPANCY

Three inserts, with size 3 fastener and face sheet of material 2024, were tested. The requirement to test 12 more insert has been planned. The upcoming test will use 6061 material face sheet. Also, there are two types of inserts, namely size 3 and size 4. The test result based on size 3 and 2024 will be deemed applicable to size 4 and 6061. Rationale has to be provided to make this jump of application.

SUGGESTED SOLUTION

Test result has to be presented and rationale given for the test applicability to cover size 4 insert and different face sheet material 6061.

SCREENING PANEL CHAIRPERSON SIGNATURE

H LO (JSC)

SUPPLIER'S RESPONSE

Additional tests will be performed

BOARD DISPOSITION

The test results will be reviewed by Jacobs and NASA for final dispositions

ADDITIONAL COMMENTS

Test proposal end of April. Perform test ASAP

RID Disposition: Accepted

RID Status: Open

Action Item Information

Action Assigned?: Yes

Actionee(s):

Phone Number(s):

Action Due Date: 6/15/2005

Action Completion Date:

Action: Test result has to be presented and rationale given for the test applicability to cover size 4 insert and different face sheet material 6061. Test proposal end of April. Perform test ASAP

Action Status:

Open Action Items Report

Action Status:

Open Action Items Report

Open Item Number AMS_02-Thermal_CDR-18

RID Open Date: 4/4/2005

RID Closure Date:

Title: Bimetallic Transition

Affected Document: TCS Hardware Design Report/AMS-

Initiator(s): H. C. Lo/NASA-JSC

Initiator(s) Phone Number:

Description: DISCREPANCY

Material corrosion can be a concern for bimetallic transition for long duration operation.

SUGGESTED SOLUTION

Clarification required

SCREENING PANEL CHAIRPERSON SIGNATURE

H LO (JSC)

BOARD DISPOSITION

Provide information on the connection materials

ADDITIONAL COMMENTS

Materials are in the materials list of the CDR package

RID Disposition: Accepted

RID Status: Open

Action Item Information

Action Assigned?: Yes

Actionee(s):

Phone Number(s):

Action Due Date:

Action Completion Date:

Action: Clarification required. Provide information on the connection materials.

Action Status:

Open Action Items Report

Open Item Number AMS_02-Thermal_CDR-29

RID Open Date: 4/4/2005

RID Closure Date:

Title: Integration of crates onto main radiator panel

Affected Document: Main & Tracker Radiator Structural

Initiator(s): H. C. Lo/NASA-JSC

Initiator(s) Phone Number:

Description: DISCREPANCY

Tolerance analysis is not presented.

SUGGESTED SOLUTION

Present the tolerance analysis or installation procedure for successful installation.

SCREENING PANEL CHAIRPERSON SIGNATURE

H LO (JSC)

BOARD DISPOSITION

Perform the tolerance analysis

RID Disposition: Accepted

RID Status: Open

Action Item Information

Action Assigned?: Yes

Actionee(s):

Phone Number(s):

Action Due Date: 5/15/2005

Action Completion Date:

Action: Perform the tolerance analysis and present the tolerance analysis or installation procedure for successful installation.

Action Status:

Open Action Items Report

Open Item Number AMS_02-Thermal_CDR-38

RID Open Date: 4/4/2005

RID Closure Date:

Title: Reduced models

Affected Document: AMS-02 LTA Thermal Analysis Rep

Initiator(s): Craig Clark/ESCG

Initiator(s) Phone Number: 281-461-5378

Description: DISCREPANCY

There is no documentation of where or how reduced models were used in the integrated analyses.

SUGGESTED SOLUTION

Provide screening documentation of AMS-02 Integrated model, including where reduced models were used, how they were used to generate accurate interface data.

SUPPLIER'S RESPONSE

Information will be provided in next issue of the AMS TCS model description.

RID Disposition: Accepted

RID Status: Open

Action Item Information

Action Assigned?: Yes

Actionee(s):

Phone Number(s):

Action Due Date: 5/15/2005

Action Completion Date:

Action: Provide screening documentation of AMS-02 Integrated model, including where reduced models were used, how they were used to generate accurate interface data.

Action Status:

Open Action Items Report

Open Item Number AMS_02-Thermal_CDR-42

RID Open Date: 4/4/2005

RID Closure Date:

Title: Typo's

Affected Document: AMS-02 LTA Thermal Analysis Rep

Initiator(s): Craig Clark/ESCG

Initiator(s) Phone Number: 281-461-5378

Description: DISCREPANCY

Typos: remarks suggest "worst hot case", but should read "worst cold case" in tables 8-21, 8-23, 8-25, 8-27, 8-28, 8-29, 8-38, 8-42, 8-43

SUGGESTED SOLUTION

Correct typos in next release.

SUPPLIER'S RESPONSE

Next issue of the report will contain right labelling

RID Disposition: Accepted

RID Status: Open

Action Item Information

Action Assigned?: Yes **Actionee(s):**

Phone Number(s):

Action Due Date: 5/30/2005

Action Completion Date:

Action: Correct typos in next release.

Action Status:

Open Action Items Report

Open Item Number AMS_02-Thermal_CDR-47

RID Open Date: 4/4/2005

RID Closure Date:

Title: Cold Cases

Affected Document: AMS-02 LTA Thermal Analysis Rep

Initiator(s): Craig Clark/ESCG

Initiator(s) Phone Number: 281-461-5378

Description: DISCREPANCY

Cold cases for E-crate, Star Tracker, VC, CAB, TRD Gas Box and ACC are all B=0, YPR=0,0,0. This seems odd since CAB and TRDGB are on opposite sides.

SUGGESTED SOLUTION

Check screening (see RID CSC-TCS-01)

SUPPLIER'S RESPONSE

It will be checked and documented.

ADDITIONAL COMMENTS

C. Clark will finish his survey in ~2weeks (15 May). Then it will be decided whether 1k or 10k rays are needed. Then do actual survey.

RID Disposition: Accepted

RID Status: Open

Action Item Information

Action Assigned?: Yes

Actionee(s): Craig Clark/ESCG

Phone Number(s): 281-461-5378

Action Due Date: 5/31/2005

Action Completion Date:

Action: Check screening (see RID CSC-TCS-01)

Action Status:

Open Action Items Report

Open Item Number AMS_02-Thermal_CDR-55

RID Open Date: 4/4/2005

RID Closure Date:

Title: LHP liquid content

Affected Document: TCS Hardware Design report/AMS0

Initiator(s): Craig Clark/ESCG

Initiator(s) Phone Number: 281-461-5378

Description: DISCREPANCY

It is not clear if volume and liquid content specified in table 4-2 is for 1 LHP or all 8.

SUGGESTED SOLUTION

Clarify if for 1 or 8 LHPs to avoid confusion.

SUPPLIER'S RESPONSE

Table 4-2 is related to ONE LHP. It is already clear from the volume calculation, shown in the same table

REVIEW GROUP / PANEL DISPOSITION

Information to be made clear in next issue of the document

RID Disposition: Accepted

RID Status: Open

Action Item Information

Action Assigned?: Yes

Actionee(s):

Phone Number(s):

Action Due Date: 5/31/2005

Action Completion Date:

Action: Clarify if for 1 or 8 LHPs to avoid confusion. Information to be made clear in next issue of the document.

Action Status:

Open Action Items Report

Open Item Number AMS_02-Thermal_CDR-56

RID Open Date: 4/4/2005

RID Closure Date:

Title: CAB Heaters

Affected Document: AMS-02 120VDC & 28VDC heater

Initiator(s): Craig Clark/ESCG

Initiator(s) Phone Number: 281-461-5378

Description: DISCREPANCY
CAB heaters are not defined.

SUGGESTED SOLUTION
Provide design details for CAB heaters

SUPPLIER'S RESPONSE
CAB design to be completed yet.
Details to be provided after design completion.

RID Disposition: Accepted

RID Status: Open

Action Item Information

Action Assigned?: Yes **Actionee(s):**

Phone Number(s):

Action Due Date: 6/15/2005

Action Completion Date:

Action: Provide design details for CAB heaters. CAB design completed.

Action Status:

Open Action Items Report

Open Item Number AMS_02-Thermal_CDR-57

RID Open Date: 4/4/2005

RID Closure Date:

Title: TRDGB heaters

Affected Document: AMS-02 120VDC & 28VDC heater

Initiator(s): Craig Clark/ESCG

Initiator(s) Phone Number: 281-461-5378

Description: DISCREPANCY

Analysis of TRDGB heaters not provided.

SUGGESTED SOLUTION

Provide analysis for TRDGB heaters

SUPPLIER'S RESPONSE

Failure on analysis will be done by TRDGB thermal responsible.

RID Disposition: Accepted

RID Status: Open

Action Item Information

Action Assigned?: Yes

Actionee(s):

Phone Number(s):

Action Due Date: 6/1/2005

Action Completion Date:

Action: Provide analysis for TRDGB heaters.

Action Status:

Open Action Items Report

Open Item Number AMS_02-Thermal_CDR-58

RID Open Date: 4/4/2005

RID Closure Date:

Title: Heater power density requirement

Affected Document: TCS Heater Definition/AMS02-OHB

Initiator(s): Craig Clark/ESCG

Initiator(s) Phone Number: 281-461-5378

Description: DISCREPANCY

Power density of 0.54 W/cm² = 3.5 W/in² is higher than 3 W/in² specified in NASA spec JSC-30312

SUGGESTED SOLUTION

Use 3 W/in³ (.46 W/cm²) as guideline for maximum power density when sizing heaters.

SUPPLIER'S RESPONSE

3.5 W/sq(in) is the ESA SCC 4009/001, (Procurement spec for EEE parts), and was chosen as a guideline in December AMS thermal workshop.

REVIEW GROUP / PANEL DISPOSITION

It is requested to use the value in NASA spec JSC-30312,
All heaters must be redesigned accordingly.

ADDITIONAL COMMENTS

The spec also contains a statement that project manager can determine the power density if there are good reasons. Redesign involves considerable work (200-300h), and possibly delay if heat pipe flanges need to be changed. C. Clark will check how we must react by 27 April.

RID Disposition: Accepted

RID Status: Open

Action Item Information

Action Assigned?: Yes

Actionee(s):

Phone Number(s):

Action Due Date: 6/1/2005

Action Completion Date:

Action: Use 3 W/in³ (.46 W/cm²) as guideline for maximum power density when sizing heaters.

Action Status:

Open Action Items Report

Open Item Number AMS_02-Thermal_CDR-60

RID Open Date: 4/4/2005

RID Closure Date:

Title: Crate radiator heaters

Affected Document: TCS Heater Definition/AMS02-OHB

Initiator(s): Craig Clark/ESCG

Initiator(s) Phone Number: 281-461-5378

Description: DISCREPANCY:

Crate radiator heaters are not defined.

SUGGESTED SOLUTION

Provide details for crate radiator heaters.

RID Disposition: Accepted

RID Status: Open

Action Item Information

Action Assigned?: Yes **Actionee(s):**

Phone Number(s):

Action Due Date: 5/15/2005

Action Completion Date:

Action: Provide details for crate radiator heaters.

Action Status:

Open Action Items Report

Open Item Number AMS_02-Thermal_CDR-61

RID Open Date: 4/4/2005

RID Closure Date:

Title: MLI mass budget

Affected Document: AMS-02 TCS Mass Budget, Feb 05

Initiator(s): Craig Clark/ESCG

Initiator(s) Phone Number: 281-461-5378

Description: DISCREPANCY

No indication that mass is budgeted for MLI of CAB LHP or MLI of Cryo LHP.

SUGGESTED SOLUTION

Make sure all MLI is accurately accounted for in TCS Mass budget.

SUPPLIER'S RESPONSE

Will do so.

RID Disposition: Accepted

RID Status: Open

Action Item Information

Action Assigned?: Yes

Actionee(s):

Phone Number(s):

Action Due Date: 4/12/2005

Action Completion Date:

Action: Make sure all MLI is accurately accounted for in TCS Mass budget.

Action Status: 04/27/05 - TCS mass budget presented at the April TIM, but it was rejected. Mike Capell/AMS requested that a new due date be assigned to CGS. Craig Craig/ESCG to coordinate with CGS.

Open Action Items Report

Open Action Items Report

Open Item Number AMS_02-Thermal_CDR-62

RID Open Date: 4/4/2005

RID Closure Date:

Title: MLI configuration and mass

Affected Document: AMS-02 MLI Description/AMS02-T

Initiator(s): Craig Clark/ESCG

Initiator(s) Phone Number: 281-461-5378

Description: DISCREPANCY

MLI blankets are shown with beta-cloth only on the outside and VDA/Mylar/VDA on the inside. Mylar is prone to tearing and the VDA could cause electrical shorts. For durability beta-cloth may be required on both sides for some blankets. This would increase mass. No attachment (grommets, standoffs, etc.) are indicated in the mass estimates. For some blankets this could be a significant percentage of total mass. Overall mass estimates seem low.

SUGGESTED SOLUTION

Verify all MLI configurations are adequate for durability and electrical considerations.
Make sure attachments are considered in mass estimates.
Recheck all MLI mass estimates.

SUPPLIER'S RESPONSE

We will provide a list of the blankets we foresee critical (number of integration times, accessibility, sharp shape of hardware underneath, ...) for the issue presented in this RID. Mass budget will be reviewed with a rule-of-thumb for the specific density: 0.5 Kg/sq(m) for large, 1 Kg/sq(m) for small for single Betacloth layer MLI blankets. No issues are foreseen as far as electrical conductivity of the inner layer.

ADDITIONAL COMMENTS

Estimates will be made of how many times the blankets will be installed.

RID Disposition: Accepted

RID Status: Open

Action Item Information

Action Assigned?: Yes

Actionee(s):

Phone Number(s):

Action Due Date: 4/30/2005

Action Completion Date:

Action: Verify all MLI configurations are adequate for durability and electrical considerations.
Make sure attachments are considered in mass estimates.
Recheck all MLI mass estimates.

Action Status:

Open Action Items Report

Open Item Number AMS_02-Thermal_CDR-66

RID Open Date: 4/4/2005

RID Closure Date:

Title: Brick conductive interface

Affected Document: AMS-02 EHV and RHV Bricks Ther

Initiator(s): Craig Clark/ESCG

Initiator(s) Phone Number: 281-461-5378

Description: DISCREPANCY

A very detailed analysis was performed to determine the conductance across the bolted interface to the USS. Bolted interface are difficult to estimate. A 20% uncertainty margin may not be sufficient.

Conservative estimates for cold cases may be non-conservative in hot cases.

SUGGESTED SOLUTION

Identify the criticality of this interface, perhaps by performing a sensitivity study.

If this is a critical interface then consider testing to verify actual value.

SUPPLIER'S RESPONSE

Identical design has been tested already in vacuum. 20% uncertainty looks appropriate. Appropriate conservatism will be considered for cold cases.

RID Disposition: Accepted

RID Status: Open

Action Item Information

Action Assigned?: Yes

Actionee(s):

Phone Number(s):

Action Due Date: 4/30/2005

Action Completion Date:

Action: Identify the criticality of this interface, perhaps by performing a sensitivity study. If this is a critical interface then consider testing to verify actual value.

Action Status: 04/27/05 - Craig Clark/ESCG to discuss this action with CGS.

Open Action Items Report

Open Item Number AMS_02-Thermal_CDR-67

RID Open Date: 4/4/2005

RID Closure Date:

Title: Brick Cold Case

Affected Document: AMS-02 EHV and RHV Bricks Ther

Initiator(s): Craig Clark/ESCG

Initiator(s) Phone Number: 281-461-5378

Description: DISCREPANCY

Cold case was performed with EOL properties.

This could be non-conservative.

SUGGESTED SOLUTION

Consider using BOL properties for cold analyses.

SUPPLIER'S RESPONSE

This is relevant to End Of Mission case.

REVIEW GROUP / PANEL DISPOSITION

End of Mission can be BOL.

RID Disposition: Accepted

RID Status: Open

Action Item Information

Action Assigned?: Yes **Actionee(s):**

Phone Number(s):

Action Due Date: 5/15/2005

Action Completion Date:

Action: Consider using BOL properties for cold analyses.

Action Status:

Open Action Items Report

Open Item Number AMS_02-Thermal_CDR-68

RID Open Date: 4/4/2005

RID Closure Date:

Title: TRD Attitudes

Affected Document: AMS-02 TRD and UToF Thermal A

Initiator(s): Craig Clark/ESCG

Initiator(s) Phone Number: 281-461-5378

Description: DISCREPANCY

TRD was only analyzed in 2 ISS attitudes, both at $\beta = +75^\circ$. This is not enough to determine if all requirements are met.

SUGGESTED SOLUTION

Analyze TRD for the entire range of ISS attitudes and beta angles.

ADDITIONAL COMMENTS

Also all STS free flying, doscked on ISS and handoff cases.

RID Disposition: Accepted

RID Status: Open

Action Item Information

Action Assigned?: Yes

Actionee(s):

Phone Number(s):

Action Due Date:

Action Completion Date:

Action: Analyze TRD for the entire range of ISS attitudes and beta angles. Due date and actionee to be clarified.

Action Status:

Open Action Items Report

Open Action Items Report

Open Item Number AMS_02-Thermal_CDR-69

RID Open Date: 4/4/2005

RID Closure Date:

Title: UPS requirements

Affected Document: Preliminary Thermal requirements f

Initiator(s): Craig Clark/ESCG

Initiator(s) Phone Number: 281-461-5378

Description: DISCREPANCY

There is no non-op limit specified for the UPS. The non-op limit should be -40 to +50C.

The UPS must be able to operate whenever the magnet is charged, but need only stay within non-op limits when the magnet is not charged (like when AMS-02 is in the Payload Bay).

CUPS should read UPS.

SUGGESTED SOLUTION

Update Thermal ICD Table 8.2 to read:

UPS Operational Range (magnet charged) -25 to +50C

UPS Non-operation Range (magnet uncharged) -40 to +50C

Change all references from CUPS to UPS.

SUPPLIER'S RESPONSE

Will be updated in next issue.

ADDITIONAL COMMENTS

Have working draft to update now.

RID Disposition: Accepted

RID Status: Open

Action Item Information

Action Assigned?: Yes

Actionee(s):

Phone Number(s):

Action Due Date: 6/15/2005

Action Completion Date:

Action: Update Thermal ICD Table 8.2 to read:

UPS Operational Range (magnet charged) -25 to +50C.

UPS Non-operation Range (magnet uncharged) -40 to +50C.

Change all references from CUPS to UPS.

Action Status:

Open Action Items Report

Action Status:

Open Action Items Report

Open Item Number AMS_02-Thermal_CDR-70

RID Open Date: 4/4/2005

RID Closure Date:

Title: Heat Pipe MDP

Affected Document: TCS Hardware Design Report/AMS

Initiator(s): Craig Clark/ESCG

Initiator(s) Phone Number: 281-461-5378

Description: DISCREPANCY

Table 5-2 shows the heat pipe MDP as 21 Bar while Table 5-3 show 20 Bar.

SUGGESTED SOLUTION

Clarify correct MDP and make tables consistent.

ADDITIONAL COMMENTS

OHB sends e-mail to L. Hill. Correct tables later (20 Bar)

RID Disposition: Accepted

RID Status: Open

Action Item Information

Action Assigned?: Yes

Actionee(s):

Phone Number(s):

Action Due Date: 5/15/2005

Action Completion Date:

Action: Clarify correct MDP and make tables consistent.

Action Status:

Open Action Items Report

Open Item Number AMS_02-Thermal_CDR-71

RID Open Date: 4/4/2005

RID Closure Date:

Title: Stress Corrosion Cracking SCC

Affected Document: AMS-OHB-LIS-001

Initiator(s): Norman Schmoeker/Boeing

Initiator(s) Phone Number: 256-961-2386

Description: DISCREPANCY

Several metallic materials have a SCC rating of B or C. Will there be MUAs generated for these materials?

SUGGESTED SOLUTION

Clarification required

BOARD DISPOSITION

MUAs will be generate for the materials by NASA material representative

ADDITIONAL COMMENTS

Need to send materials list to Tim Schniepp for clarification.

RID Disposition: Accepted

RID Status: Open

Action Item Information

Action Assigned?: Yes

Actionee(s):

Phone Number(s):

Action Due Date:

Action Completion Date:

Action: Need to send materials list to Tim Schniepp for clarification.

Action Status:

Open Action Items Report

Open Item Number AMS_02-Thermal_CDR-77

RID Open Date: 4/4/2005

RID Closure Date:

Title: (PRELIMINARY?) Thermal ICD

Affected Document: AMS02-TN-CGS-004_issue5

Initiator(s): Mike Capell/AMS

Initiator(s) Phone Number: +41 (22) 767 4706

Description: DISCREPANCY

Why is this (still) called

PRELIMINARY THERMAL REQUIREMENTS FOR AMS02 INTERNAL INTERFACES

~~~~~

SUGGESTED SOLUTION

Need comments

SUPPLIER'S RESPONSE

Will be eliminated in next issue

ADDITIONAL COMMENTS

Change name on working draft now.

**RID Disposition:** Accepted

**RID Status:** Open

### Action Item Information

**Action Assigned?:** Yes      **Actionee(s):**

**Phone Number(s):**

**Action Due Date:** 7/31/2005

**Action Completion Date:**

**Action:** Will be eliminated in next issue

**Action Status:**

## Open Action Items Report

**Open Item Number** AMS\_02-Thermal\_CDR-78

**RID Open Date:** 4/4/2005

**RID Closure Date:**

**Title:** UPS temps LTA

**Affected Document:** AMS02-RP-CGS-006\_Iss2

**Initiator(s):** Mike Capell/AMS

**Initiator(s) Phone Number:** +41 (22) 767 4706

**Description:** DISCREPANCY

So far (and I've only gotten to STS docked but AMS still in bay) some of the temperatures look pretty cold (less than -30C).

Of course the magnet is not charged, but the thermal ICD lists the min temp as -25C.

**SUGGESTED SOLUTION**

Need comments

**SUPPLIER'S RESPONSE**

UPS requirements updated in next issue of ICD.

**ADDITIONAL COMMENTS**

1. UPS requirements updated in next issue of ICD

2. Results

Link to

**RID Disposition:** Accepted

**RID Status:** Open

### Action Item Information

**Action Assigned?:** Yes

**Actionee(s):**

**Phone Number(s):**

**Action Due Date:** 7/31/2005

**Action Completion Date:**

**Action:** UPS requirements updated in next issue of ICD.

**Action Status:**

## Open Action Items Report

**Open Item Number** AMS\_02-Thermal\_CDR-82

**RID Open Date:** 4/4/2005

**RID Closure Date:**

**Title:** CAB Heater Schematic

**Affected Document:** AMS02-TN-CGS-007

**Initiator(s):** Mike Capell/AMS

**Initiator(s) Phone Number:** +41 (22) 767 4706

**Description:** DISCREPANCY

Looking at Fig 4-2, pg 20, I see that the thermostats for the CAB are both placed on the return line from the heaters. Is there a reason for this ? Usually we have been placing the first one on the return line and the second one on the input line because we understood this was the "normal practice". I don't think it makes much difference - but we should stick to one way or the other, no ?

**SUGGESTED SOLUTION**

Need comments

**SUPPLIER'S RESPONSE**

Will be fixed

**RID Disposition:** Accepted

**RID Status:** Open

### Action Item Information

**Action Assigned?:** Yes

**Actionee(s):**

**Phone Number(s):**

**Action Due Date:** 5/15/2005

**Action Completion Date:**

**Action:** Figure needs to be fixed.

**Action Status:**

## Open Action Items Report

**Open Item Number** AMS\_02-Thermal\_CDR-87

**RID Open Date:** 4/4/2005

**RID Closure Date:**

**Title:** RAM HEATER DIMENSIONING

**Affected Document:** Main radiator TAR

**Initiator(s):** Mike Capell/AMS

**Initiator(s) Phone Number:** +41 (22) 767 4706

**Description:** DISCREPANCY

*J crate (and hence AMS) cannot be turned on in the coldest case on the ISS.*

### SUGGESTED SOLUTION

*Use more power and optimize heaters layout to have LARGE positive margin for turning on the Jcrate and the whole RAM side.*

### ADDITIONAL COMMENTS

*2x402W can be made available. New heater sizes must be chosen so they can work at minimum voltage. This has a bearing on heater power density RID, since RAM radiator will have to be redone anyway.*

**RID Disposition:** Accepted

**RID Status:** Open

### Action Item Information

**Action Assigned?:** Yes

**Actionee(s):**

**Phone Number(s):**

**Action Due Date:**

**Action Completion Date:**

**Action:** *Use more power and optimize heaters layout to have LARGE positive margin for turning on the Jcrate and the whole RAM side*

**Action Status:**

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## Open Action Items Report

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**Open Item Number** AMS\_02-Zenith\_Radiator\_LHP\_PDR-01

**RID Open Date:** 4/6/2005

**RID Closure Date:**

**Title:** Missing Details for LHP

**Affected Document:**

**Initiator(s):** Craig Clark/ESCG

**Initiator(s) Phone Number:** 281-461-5378

**Description:** DISCREPANCY

Need details, including cross-section of LHP evaporator and bypass valve for Phase II Safety Review.

**SUGGESTED SOLUTION**

Provide details to JS/NASA.

**ADDITIONAL COMMENTS**

L. Hill has not seen, e.g., schematic of where valve is, ...

**RID Disposition:** Accepted

**RID Status:** Open

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### Action Item Information

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**Action Assigned?:** Yes

**Actionee(s):**

**Phone Number(s):**

**Action Due Date:** 6/15/2005

**Action Completion Date:**

**Action:** Provide details, including cross-section of LHP evaporator and bypass valve for Phase II Safety Review to JS/NASA.

**Action Status:**

## Open Action Items Report

**Open Item Number** AMS\_02-Zenith\_Radiator\_LHP\_PDR-02

**RID Open Date:** 4/6/2005

**RID Closure Date:**

**Title:** Missing Document

**Affected Document:**

**Initiator(s):** Craig Clark/ESCG

**Initiator(s) Phone Number:** 281-461-5378

**Description:** DISCREPANCY

Thermal resistance between LHP evaporator and cryocooler is a significant contributor to the temperature difference between Zenith radiator and cyrocooler. Latest estimates from GSFC for indium interface are higher than previously assumed.

### SUGGESTED SOLUTION

GSFC should investigate alternative interface fillers (e.g Chootherm) to improve the conductance between the cryocooler and the LHP evaporator.

### ADDITIONAL COMMENTS

This has not yet been sent to GSC. MM will send e-mail to K. Shirey.

**RID Disposition:** Accepted

**RID Status:** Open

### Action Item Information

**Action Assigned?:** Yes

**Actionee(s):**

**Phone Number(s):**

**Action Due Date:** 6/15/2005

**Action Completion Date:**

**Action:** GSFC should investigate alternative interface fillers (e.g Chootherm) to improve the conductance between the cryocooler and the LHP evaporator.

**Action Status:**

## Open Action Items Report

**Open Item Number** AMS\_02-Zenith\_Radiator\_LHP\_PDR-04

**RID Open Date:** 4/6/2005

**RID Closure Date:**

**Title:** Cryocooler Minimum Operating Temperature

**Affected Document:**

**Initiator(s):** Mike Capell/AMS

**Initiator(s) Phone Number:** +41 (22) 767 4706

**Description:** DISCREPANCY

The LHP design is driven by minimum cryocooler temperature, which is at the time being To Be Confirmed.

### SUGGESTED SOLUTION

GSFC to provide the up-to-date value of the minimum op. temperature for the cryocooler.

### SUPPLIER'S RESPONSE (Kimberly Shirey)

We have characterized the cryocooler at a minimum operating temperature of -20C. We haven't been able to test any lower because we are being limited by the operating range of our recirculating chillers. We have demonstrated turn-on capability down to -60C however we don't have the capability at this time to fully operate the cryocooler at this temperature. Therefore, currently the minimum operating temperature for the cryocooler is -20C with no qualified safety margin.

### ADDITIONAL COMMENTS

Are there plans for further tests?

**RID Disposition:** Accepted

**RID Status:** Open

### Action Item Information

**Action Assigned?:** Yes

**Actionee(s):**

**Phone Number(s):**

**Action Due Date:**

**Action Completion Date:**

**Action:** GSFC to provide the up-to-date value of the minimum op. temperature for the cryocooler.

**Action Status:**



## Open Action Items Report

**Open Item Number** AMS\_02-Zenith\_Radiator\_LHP\_PDR-05

**RID Open Date:** 4/6/2005

**RID Closure Date:**

**Title:** Cryocooler minimum power

**Affected Document:**

**Initiator(s):** Mike Capell/AMS

**Initiator(s) Phone Number:** +41 (22) 767 4706

**Description:** DISCREPANCY

The LHP design is driven by the minimum cryocooler power (60W). It is not clear in which phases the 60 W value will be used to operate the cryocooler.

### SUGGESTED SOLUTION

Provide a rationale for when 60 W operating power is foreseen.

### SUPPLIER'S RESPONSE (Kimberly Shirey)

60 W is the minimum steady state power level in which the cryocoolers can be safely operated. If power conservation is required at any point during the mission this is the lowest the cryocoolers can be operated before being fully powered off.

**RID Disposition:** Accepted

**RID Status:** Open

### Action Item Information

**Action Assigned?:** Yes

**Actionee(s):**

**Phone Number(s):**

**Action Due Date:**

**Action Completion Date:**

**Action:** Provide a rationale for when 60 W operating power is foreseen.

**Action Status:**

## Open Action Items Report

**Open Item Number** AMS\_02-Zenith\_Radiator\_LHP\_PDR-06

**RID Open Date:** 4/6/2005

**RID Closure Date:**

**Title:** Propylene content

**Affected Document:** TCS Hardware Design Report/AMS

**Initiator(s):** Craig Clark/ESCG

**Initiator(s) Phone Number:** 281-461-5378

**Description:** DISCREPANCY

Inconsistency in amount of propylene used. Table 4.2 indicates 39.4 grams, Section 4.6 indicates 42 grams, and table 6.2 indicates 55 grams. (Table 6.2 should be for the CAB Loop Heat Pipe, but it is indicated to be the Cryocooler Loop Heat Pipe filled with Propylene.)

### SUGGESTED SOLUTION

Please resolve apparent conflict as to quantity of propylene used and correct Table 6-2.

**RID Disposition:** Accepted

**RID Status:** Open

### Action Item Information

**Action Assigned?:** Yes

**Actionee(s):**

**Phone Number(s):**

**Action Due Date:**

**Action Completion Date:**

**Action:** Resolve apparent conflict as to quantity of propylene used and correct Table 6-2.

**Action Status:**

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## *Open Action Items Report*

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